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Report of the Working Party on Pollution and Energy (GRPE) on its sixty-sixth session (3-7 June 2013)

Contents

	<i>Paragraphs</i>	<i>Page</i>
I. Attendance.....	1	3
II. Adoption of the agenda (agenda item 1)	2-4	3
III. Report on the last sessions of the World Forum for Harmonization of Vehicle Regulations (WP.29) (agenda item 2)	5-12	4
IV. Light vehicles (agenda item 3)	13-30	4
A. Worldwide harmonized Light vehicles Test Procedure (WLTP)	13-19	4
B. Mobile Air-Conditioning Test Procedure (MACTP)	20-21	6
C. UN Regulations Nos. 68 (measurement of the maximum speed, including electric vehicles), 83 (emissions of M ₁ and N ₁ vehicles), 101 (CO ₂ emissions/fuel consumption) and 103 (replacement pollution control devices).....	22-30	6
V. Heavy duty vehicles (agenda item 4)	31-41	7
A. Heavy Duty Hybrids (HDH)	31-33	7
B. Retrofit Emissions Control devices (REC)	34-36	8
C. UN Regulation No. 49 (emissions of compression ignition and positive ignition (LPG and CNG) engines)	37-40	8
D. UN Global Technical Regulations (GTRs) 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)).....	41	9
VI. UN Regulations Nos. 85 (measurement of the net power and the 30 min. power) and 115 (LPG and CNG retrofit systems) (agenda item 5)	42-44	9

VII.	Agricultural and forestry tractors, non-road mobile machinery (agenda item 6) ...	45-46	10
	A. UN Regulations Nos. 96 (diesel emission (agricultural tractors)) and 120 (net power of tractors and non-road mobile machinery)	45	10
	B. UN GTR No. 11 (engines)	46	10
VIII.	Particle Measurement Programme (PMP) (agenda item 7)	47-49	10
IX.	Gaseous Fuelled Vehicles (GFV) (agenda item 8)	50-53	10
X.	Motorcycles and mopeds (agenda item 9)	54-59	11
	A. Environmental and Propulsion Performance Requirements (EPPR) for L-category vehicles.....	54-57	11
	B. UN Regulations Nos. 40 (emission of gaseous pollutants by motor cycles) and 47 (emission of gaseous pollutants of mopeds).....	58	12
	C. UN GTR No. 2 (World-wide Motorcycle emissions Test Cycle (WMTC))..	59	12
XI.	Electric Vehicles and the Environment (EVE) (agenda item 10)	60-61	12
XII.	Vehicle Propulsion System Definitions (VPSD) (agenda item 11)	62-63	12
XIII.	Fuel Quality (FQ) (agenda item 12)	64-65	13
XIV.	International Whole Vehicle Type Approval (IWVTA) (agenda item 13).....	66-68	13
XV.	Recyclability (agenda item 14).....	69-71	13
XVI.	1997 Agreement (periodical technical inspections): UN Rule No. 1 (environment protection) (agenda item 15).....	72	14
XVII.	Exchange of information on emission requirements (agenda item 16)	73	14
XVIII.	Election of officers (agenda item 17)	74	14
XIX.	Other business (agenda item 18)	75-81	14
	A. Vehicles Indoor Air Quality (VIAQ)	75-77	14
	B. Carcinogenicity of diesel engine exhaust gases	78-80	15
	C. Tributes	81	15
XX.	Provisional agenda for the next session	82-86	15
	A. Next extraordinary GRPE session	82	16
	B. Next ordinary GRPE session	83	16
	C. Provisional agenda for the next ordinary GRPE sessions proper.....	84	16
	D. Informal meetings in conjunction with the next ordinary GRPE session	85-86	17
Annexes			
I.	List of informal documents distributed without an official symbol		18
II.	Informal meetings held in conjunction with the GRPE session		21
III.	List of GRPE informal working groups, task forces and subgroups		22
IV.	Proposal for Supplement 6 to UN Regulation No. 115		24
V.	Terms of reference and rules of procedure for the Informal Working Group on the Particle Measurement Programme (PMP).....		25
VI.	Terms of reference and rules of procedure for the Informal Working Group on Environmental and Propulsion Performance Requirements for L-category vehicles (EPPR)		28

I. Attendance

1. The Working Party on Pollution and Energy (GRPE) held its sixty-sixth session from 3 to 7 June 2013, with Mr. Christoph Albus (Germany) as Chair and Mr. Shrikant Marathe (India) 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): Austria; Belgium; Canada; China; France; Germany; Hungary; India; Italy; Japan; Netherlands; Norway; Poland; Republic of Korea (Korea); Russian Federation; South Africa; Spain; Sweden; Switzerland; United Kingdom of Great Britain and Northern Ireland (UK); United States of America (USA). Experts from the European Commission (EC) also participated. Experts from the following non-governmental organizations took part in the session: Association for Emissions Control by Catalyst (AECC); Association of European Manufacturers of Internal Combustion Engines (EUROMOT); European Association of Automobile Suppliers (CLEPA/MEMA/JAPIA); European Federation for Transport and Environment (T&E); European Liquefied Petroleum Gas Association (AEGPL); European Tyre and Rim Technical Organization (ETRTO); International Association for Natural Gas Vehicles (IANGV/NGV Global); International Automobile Federation (FIA); International Motorcycle Manufacturers Association (IMMA); and International Organization of Motor Vehicle Manufacturers (OICA). Upon the special invitation of the Chair, the experts from the following entities also attended: Environmental Industries Commission (EIC); European Association for Advanced Rechargeable Batteries (RECHARGE), Horiba Limited; Hyundai Mobis; Korea Automobile Manufacturers Association (KAMA); Technical Committee of Petroleum Additive Manufacturers in Europe (CEFIC-ATC).

II. Adoption of the agenda (agenda item 1)

Documentation: ECE/TRANS/WP.29/GRPE/2013/5 and Corr.1
Informal documents GRPE-66-01-Rev.2, GRPE-66-14-Rev.1 and
GRPE-66-18-Rev.3

2. Following a brief intervention of the secretary of WP.29, underlining the importance of the WLTP work and offering the support of the secretariat, GRPE adopted the agenda (ECE/TRANS/WP.29/GRPE/2013/5 and Corr.1). GRPE added new items on Vehicles Indoor Air Quality (VIAQ), the carcinogenicity of diesel engine exhaust gases, and tributes (as specified in GRPE-66-18-Rev.3). GRPE noted GRPE-66-01-Rev.2, on the organization of GRPE informal group meetings.

3. The informal documents distributed during the GRPE session are listed in Annex I. Annex II contains a list of the informal meetings held in conjunction with the GRPE session. Annex III lists GRPE informal working groups, task forces and subgroups, giving details on their Chairs, secretaries, and on the end of their mandate.

4. The secretariat introduced GRPE-66-14-Rev.1, with general information about the session. An extraordinary GRPE session will take place on 14 November 2013. The deadline for the submission of official working documents is 22 August 2013. The next ordinary GRPE session will take place on 7-10 January 2014. The deadline for the submission of official working documents for the January 2014 session is 15 October 2013. Chairs and secretaries of informal working groups were invited to approach the secretariat to define the calendar of meetings of informal working groups for the ordinary session.

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

Documentation: ECE/TRANS/WP.29/1102,
Informal documents WP.29-159-19 and GRPE-66-15

5. The secretariat informed GRPE about items discussed in the last session of the World Forum (held in March 2013) (ECE/TRANS/WP.29/1102), reporting the information summarized in GRPE-66-15.

6. No documents were transmitted by GRPE for adoption by WP.29 in March 2013.

7. Considering the 1997 Agreement on Periodical Technical Inspections, WP.29 adopted a revised road map (ECE/TRANS/WP.29/1102, Annex II), developed by the Russian Federation and the International Motor Vehicle Inspection Committee (CITA), for the update of UN Rules. The World Forum also requested its subsidiary Working Parties (including GRPE) to consider ECE/TRANS/WP.29/2013/64, containing a proposal to amend UN Rule No. 1.

8. Prior to the consideration at its June 2013 session, the World Forum asked GRPE to provide technical input to the report on diesel exhaust emissions, taking into account the incorporation of the comments and the inclusion of recommendations in the latest draft.

9. WP.29 adopted the Environmentally Friendly Vehicles (EFV) summary report and decided to freeze the activities of the EFV informal working group and the EFV task force group.

10. WP.29 acknowledged the nomination of the expert from Spain as the GRPE Ambassador for issues concerning the International Whole Vehicle Type Approval (IWVTA) and considered a first draft of the revised 1958 Agreement (WP.29-159-19). A final draft is expected in November 2013, when the submission of a first draft of the Regulation No. 0 (containing requirements for the whole vehicle type approval) is also scheduled.

11. Following an update on the status of the work on the Worldwide harmonized Light vehicles Test Procedures (WLTP), WP.29 confirmed to the GRPE Chair its availability to provide guidance at its June 2013 session, in case of remaining issues.

12. The updated terms of reference of the informal working group on Electric Vehicles and the Environment (EVE), adopted by GRPE in its last session (January 2013), will be considered in the June 2013 of WP.29.

IV. Light vehicles (agenda item 3)

A. Worldwide harmonized Light vehicles Test Procedure (WLTP)

Documentation: Informal documents GRPE-66-02, GRPE-66-34-Rev.1 and
GRPE-66-36

13. The secretary of the WLTP informal subgroup on the Development of the Harmonized driving Cycle (DHC) introduced GRPE-66-34, containing the report on the progress made since January 2013. Having stated that almost all open issues were successfully closed, he reported that DHC successfully developed the harmonized test cycles, including the downscale procedure (even if the downscale calculation formula requires finalization after correcting minor issues), the mode construction, and the gear shift

prescription (notwithstanding continued work for its improvement). A draft final report on the development of the Worldwide harmonized Light vehicles Test Cycle (WLTC) is already available and will be included in the Technical Report.

14. Responding to a question by the expert from Italy, the expert from the EC clarified work for regional weighting factors is ongoing in the European Union. He specified that Contracting Parties do not need to apply regional weighting factors for the harmonized cycle, even if there is a possibility to apply regional weighting factors if this is justified by regional driving characteristics. Having mentioned that the application of regional weighting factors can be further discussed, he added that this is not envisaged at the moment and he agreed with the GRPE recommendation to clarify this issue also in Part A of the UN GTR text.

15. The Chair of the informal subgroup on the Development of the Test Procedure (DTP) reported on the work status of the subgroup (GRPE-66-36). He stated that there are a number of remaining open issues that need to be addressed. According to the mandate documents (ECE/TRANS/WP.29/AC.3/26 and Add.1) three phases are included in the WLTP terms of reference: phase I, concerning the development of the UN GTR (test cycle and test procedure); phase II, concerning on-board diagnostics (OBD) and additional tests (e.g. on pollutants other than CO, NO_x, hydrocarbons and particulate matter); and phase III, about reference fuels and performance requirements. Phase I can be further divided in two stages, with the aim to continue work on still open issues and to improve and correct the text of the GTR based on validation and experience. The issues that are foreseen to be solved in phase I, stage 1, include: (i) Rechargeable electric energy storage system Charge Balance (RCB) correction; (ii) the warm-up procedure for the road load and dynamometer setting; (iii) the speed trace violation, concerning deviations from the test cycle beyond the prescribed tolerances; (iv) the definition of the predominant mode for vehicles with multi-mode gearboxes; and (v) the temperature correction for regional representative conditions for the CO₂ emission determination. Other issues could be finalized in phase I, stage 1, or eventually (in a fall back solution) postponed to stage 2: (i) the table of running resistances, concerning default values to be used in the dynamometer settings if the road load cannot be determined; (ii) the ambient temperature for coast-down (the latest discussions were settling on 5 to 40°C ± 5°C); and (iii) utility factors on electric vehicles. If an agreement is not reached in phase 1, stage 1, the issues will need to be defined regionally. Concluding his intervention of the status of the DTP subgroup, the DTP Chair reported that, even if the coast down and wheel torque methods are agreed, the wind tunnel and the comparison of road load determination methods are likely to be addressed in phase I, stage 2.

16. Reporting on the development of the WLTP regulatory text, the DTP Chair explained that a draft UN GTR was uploaded to the UNECE website prior to the GRPE session (GRPE-66-02). He recalled that there are a number of major open drafting points and outlined the schedule of forthcoming meetings and milestones for the completion of the drafting work. He specified that: (i) the analysis of results emerging from the GRPE discussion will be completed before end of June 2013; (ii) a meeting for the solution of outstanding issues is foreseen for the end of June 2013 in Brussels; (iii) the draft UN GTR will be circulated to WLTP members in early July 2013; (iv) a drafting group meeting will take place between 19 July 2013 and the last week of July 2013; (v) the finalisation of the draft of the UN GTR will be completed before the submission deadline for the working documents of the November 2013 session of GRPE. WP.29 is then expected to consider the text in March 2014. On the content of the regulatory text, he confirmed that the UN GTR will include an explanatory section (part A). A technical report on the UN GTR will be available as an informal document for the November 2013 session of GRPE.

17. The DTP Chair and the expert from the EC agreed that part A will be drafted by the EC, while the technical report will be delivered by an expert contracted in the framework of

the DTP activities. Both these documents will be circulated to Contracting Parties for their inputs. The expert from the EC mentioned that the text of part A will be finalized by the end of July 2013. Given the involvement of OICA for the WLTP development, the expert from OICA informed GRPE about his availability and interest to contribute the preparation of the text of part A and the technical report.

18. Having recalled the mandate documents (ECE/TRANS/WP.29/AC.3/26 and Add.1) and the information on the status of the DTP work, the GRPE Chair concluded indicating that the adoption of the UN GTR will conclude the first stage of phase I, while the second stage will result in an amendment of the UN GTR.

19. GRPE agreed that the work plan shall include the adoption of the UN GTR in the extraordinary GRPE session of November 2013. The start of the work on the first UN GTR amendment shall take place right after the UN GTR adoption and after the approval, by AC3, of a request by the co-sponsors for a mandate to develop it under the WLTP informal working group. GRPE stressed the need to define, in part A of the regulatory text, which parts of the work will be tackled in stage 2 of phase I, and agreed that: (i) part A shall be distributed at the end of July 2013 and included in the working document submitted in August 2013; and (ii) the technical report shall be submitted, as an informal document, in November 2013. In case of adoption by GRPE, both these documents can then be considered as working documents by WP.29 in March 2014.

B. Mobile Air-Conditioning Test Procedure (MACTP)

20. The Chair of the informal group on MACTP reported that the MACTP group did not meet before the GRPE proper session and requested a meeting in conjunction with the next ordinary GRPE session, in January 2014. The expert from the EC added that the first round of pilot testing was successfully finalized, notwithstanding some issues related with the recirculation strategy of one of the vehicles being tested and the need to repeat the test with manual recirculation settings.

21. GRPE acknowledged the work progress.

C. UN Regulations Nos. 68 (measurement of the maximum speed, including electric vehicles), 83 (emissions of M₁ and N₁ vehicles), 101 (CO₂ emissions/fuel consumption) and 103 (replacement pollution control devices)

Documentation: ECE/TRANS/WP.29/GRPE/2013/9,
ECE/TRANS/WP.29/GRPE/2013/10,
ECE/TRANS/WP.29/GRPE/2013/11,
Informal documents GRPE-66-04-Rev.1, GRPE-66-16, GRPE-66-17,
GRPE-66-22 and GRPE-66-32

22. Having introduced ECE/TRANS/WP.29/GRPE/2013/11, containing a proposal for the transposition of the Euro 6 legislation on the exhaust emissions of pollutants into the UN Regulation No. 83 (as explained also in GRPE-66-22), the expert from the EC explained that further amendments to the Euro 6 regulations are expected to be agreed upon in July 2013. The original plan was to include these amendments in UN Regulation No. 83 with the adoption of ECE/TRANS/WP.29/GRPE/2013/11 (as amended by GRPE-66-04-Rev.1, concerning the choice of tyres) during the current GRPE session, and to submit the changes that will be agreed upon in July 2013 to the January 2014 session of GRPE.

23. The expert from OICA suggested postponing the approval of ECE/TRANS/WP.29/GRPE/2013/11 (and related modifications, including those contained in GRPE-66-32, concerning requirements for daytime running lamps and clerical errors) due to the potential confusion caused by the forthcoming amendments to the Euro 6 regulatory texts.

24. The experts from Germany and the Netherlands supported the approach suggested by OICA. The expert from Germany also stated that the Euro 6 requirements concerning vehicles using a mixture of hydrogen and natural gas as fuel shall follow the introduction of safety-related requirements. The expert from the EC clarified that, in the European Union, setting the emission requirements does not lead to the possibility to type approve the whole vehicle, since this will only be feasible once the safety provisions are defined and adopted. Following the warning of the expert from OICA about the absence of whole vehicle type approval requirements in the UN regulatory framework, he added that, if deemed necessary, the introduction of emission requirements for vehicles using a mixture of hydrogen and natural gas as fuel in UN Regulation No. 83 could be reconsidered.

25. GRPE agreed that all modifications introduced in the current session of GRPE to ECE/TRANS/WP.29/GRPE/2013/11, as well as those emerging from the discussion scheduled for July 2013 in the European Union framework and other eventual changes, shall be incorporated in a new working document that will be submitted for the January 2014 session of GRPE.

26. The expert from OICA introduced GRPE-66-16, containing a proposal to amend the 06 series of amendments to UN Regulation No. 83 in order to align the emission requirements for social needs vehicles (currently based on M vehicles) with those enforced in the European Union (also contemplating N₁, class 3 limits).

27. GRPE requested the secretariat to distribute GRPE-66-16 as an official document for consideration at the GRPE session of January 2014.

28. Presenting GRPE-66-22, the expert from the EC explained that the implementation of the Euro 6 legislation also justifies the proposals (contained in ECE/TRANS/WP.29/GRPE/2013/9 and ECE/TRANS/WP.29/GRPE/2013/10, respectively) to amend UN Regulations Nos. 101 and 103.

29. The expert from OICA introduced GRPE-66-17, explaining that it contains modifications to ECE/TRANS/WP.29/GRPE/2013/9 and additional amendments to the 01 series of amendments to UN Regulation No. 101 regarding the requirement for daytime running lamps and the fuel consumption of fuel cell vehicles.

30. GRPE adopted ECE/TRANS/WP.29/GRPE/2013/9, as amended by GRPE-66-17, and ECE/TRANS/WP.29/GRPE/2013/10, not amended. GRPE requested the secretariat to submit the adopted proposals to WP.29 and AC.1, for consideration at their November 2013 sessions, respectively as Supplement 3 to the 01 series of amendments to Regulation No. 101 and Supplement 4 to the 00 series of amendments to Regulation No. 103.

V. Heavy duty vehicles (agenda item 4)

A. Heavy Duty Hybrids (HDH)

Documentation: Informal documents GRPE-66-23 and GRPE-66-24

31. The secretary of the HDH group introduced GRPE-66-23 and GRPE-66-24, containing information on the HDH work progress. He summarized the thirteenth and fourteenth group meetings, underlining the decision to include a new annex in UN GTR

No. 4, amending it. Having explained the status of validation test programmes, he required further input from Contracting Parties, by October 2013, on the assessment of chassis dynamometer and power-pack testing. He acknowledged that the Environmental Protection Agency of the USA requested to include powertrain testing and verification in the UN GTR and expressed the interest to take part in the second validation test programme. A drafting group for the UN GTR has been established, although the nomination of a technical secretary is still outstanding. A draft will be submitted to the next ordinary GRPE session, in January 2014, when a final report will also be submitted. The official submission of the text amending UN GTR No. 4 is expected for June 2014.

32. Focusing on the issue of CO₂ emission measurement (which is part of the HDH mandate), and having considered that Contracting Parties have their own regional heavy duty CO₂ regulations in place, he reported that the informal working group will develop a procedure for CO₂ determination in a way that will allow its use as an input for the regional CO₂ regulations, if needed. GRPE agreed with the approach outlined by the HDH Chair.

33. Following a request from the expert from Korea on the status of the CO₂ emission regulation on heavy duty vehicles in the European Union, GRPE invited the expert from the EC to provide an update in the next ordinary GRPE session, in January 2014.

B. Retrofit Emissions Control devices (REC)

Documentation: ECE/TRANS/WP.29/GRPE/2013/6,
Informal documents GRPE-66-06, GRPE-66-07, GRPE-66-08,
GRPE-66-28 and GRPE-66-42

34. Following an overview on the work of the REC group (GRPE-66-42), the Chair of the REC group illustrated ECE/TRANS/WP.29/GRPE/2013/6, a proposal for a new UN Regulation on REC, as well as: (i) GRPE-66-28, superseding GRPE-66-06 and modifying ECE/TRANS/WP.29/GRPE/2013/6 to introduce limit values and to include a set of flow charts in its Annex 8; and (ii) a draft proposal for the 01 series of amendments to the UN Regulation on REC (GRPE-66-07). These texts aim at facilitating the improvement of the ambient air quality via the reduction of the emissions of particulate matter and/or NO_x. They address the emissions of NO₂ via four classes of systems. The only outstanding issue for the 01 series of amendments concerns the NO₂ emission requirements of traps that allow for a restricted increase of the direct emissions of NO₂ (GRPE-66-08).

35. GRPE adopted ECE/TRANS/WP.29/GRPE/2013/6, as amended by GRPE-66-28, and requested the secretariat to submit the resulting proposal to WP.29 and AC.1, for consideration at their November 2013 sessions.

36. GRPE also requested the REC informal group to submit an updated version of the first amendment to the UN Regulation on REC (GRPE-66-07), reflecting the updates emerging from further discussions, so that the secretariat can prepare an official document for the GRPE session of January 2014.

C. UN Regulation No. 49 (emissions of compression ignition and positive ignition (LPG and CNG) engines)

Documentation: ECE/TRANS/WP.29/GRPE/2013/7,
ECE/TRANS/WP.29/GRPE/2013/8,
Informal documents GRPE-66-10, GRPE-66-25, GRPE-66-35-Rev.1
and GRPE-66-39

37. The Chair of the informal group on Gaseous Fuelled Vehicles (GFV) introduced: (i) ECE/TRANS/WP.29/GRPE/2013/7, a proposal to amend the 05 series of amendments of UN Regulation No. 49 to extend the Euro V pollutant emission requirements to dual-fuel heavy duty engines and vehicles; and (ii) GRPE-66-25 (presented concisely in GRPE-66-39), a revision of the calculation methods also in use for the Euro VI dual-fuel engines, an update of hydrocarbon emission limits and some editorial modifications.

38. The expert from the EC introduced ECE/TRANS/WP.29/GRPE/2013/8 and GRPE-66-10, containing modifications to the 06 series of amendments of UN Regulation No. 49 that aim to reduce the risks of misinterpretations of the regulatory text.

39. The expert from OICA presented GRPE-66-35-Rev.1, introducing the possibility to temporarily disable the OBD system for very low temperatures (first suggesting -18°C as a threshold, and later agreeing to use -22°C), arguing that only a fraction of vehicle km are run in these conditions and that the accuracy of the OBD devices is hampered at very low temperatures. Notwithstanding the need to ensure that the regulation of pollutant emission needs to be enforced also in the coldest regions and cities, the expert from Sweden accepted the proposal with a -22°C threshold. The expert from Norway supported the Swedish statement. The expert from the EC also supported the Swedish position, underlining that the deactivation shall be limited to the period of time during which the temperatures remain below the deactivation threshold.

40. GRPE adopted ECE/TRANS/WP.29/GRPE/2013/7, as amended by GRPE-66-25, and ECE/TRANS/WP.29/GRPE/2013/8, as amended by GRPE-66-10 and GRPE-66-35-Rev.1. GRPE requested the secretariat to submit the resulting proposals to WP.29 and AC.1, for consideration at their November 2013 sessions, respectively as Supplement 6 to the 05 series of amendments to Regulation No. 49 and Supplement 2 to the 06 series of amendments to Regulation No. 49.

D. UN Global Technical Regulations (GTRs) 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))

41. GRPE did not receive any new proposal to amend UN GTRs Nos. 4, 5 and 10.

VI. UN Regulations Nos. 85 (measurement of the net power and the 30 min. power) and 115 (LPG and CNG retrofit systems) (agenda item 5)

Documentation: Informal document GRPE-66-19

42. The GFV Chair illustrated a proposal to amend UN Regulation No. 115 (GRPE-66-19), correcting an error and aligning its provision to the corresponding ones in UN Regulation No. 83. Given the nature of the amendment, the expert from Italy suggested submitting the proposal, on an exceptional basis, directly to WP.29.

43. GRPE asked the secretariat to submit GRPE-66-19, as reproduced in Annex IV, as a working document directly to WP.29 and AC.1, for consideration at their November 2013 sessions, as Supplement 6 to UN Regulation No. 115.

44. GRPE did not receive any new proposal to amend UN Regulation No. 85.

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)

45. GRPE did not receive any new proposal to amend UN Regulations Nos. 96 and 120.

B. UN GTR No. 11 (engines)

46. There were no proposals to amend UN Global Technical Regulation No. 11.

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

Documentation: Informal document GRPE-66-21-Rev.1 and GRPE-66-30

47. Building on the presentation contained in GRPE-66-21-Rev.1, the PMP Chair summarized a proposal containing the terms of reference for the activities of the group (GRPE-66-30) and presented an overview of the related work programme. He explained that the scope of the terms of reference was intentionally kept as wide as possible (for example, non-exhaust particle emissions were also included) while the proposed work programme was limited to the items that were deemed to have the highest priority. The mandate for the work of the group on Particle Measurement Programme should be completed by June 2017. He added that addressing emerging issues such as the development and validation of new test procedures (such as particle number measurement systems compatible with Portable Emission Measurement Systems (PEMS)) and the consideration of issues like tyre/brake wear would require an extension of it.

48. The expert from India asked about the possibility to consider engines running on gaseous and blended fuels. The PMP Chair clarified that emissions from all engines types are already within the PMP group scope. Replying to a second question, on the possibility to analyse the particle nature and their danger for health, the PMP Chair explained that tackling these tasks would require not only specific equipment and expertise, but would also involve significant scientific challenges. Responding to comments and questions by the Russian Federation and CLEPA on tyre and brake wear, he confirmed that, even if these subjects were within the PMP scope, the current activities could concentrate mainly on early steps like a literature review.

49. GRPE acknowledged the work progress and approved the updated PMP terms of reference, as reproduced in Annex V, confirming the broad definition of the scope and agreeing with the priorities proposed by the PMP Chair, understanding that work cannot be conducted, at the same time, on all the issues.

IX. Gaseous Fuelled Vehicles (GFV) (agenda item 8)

Documentation: Informal documents GRPE-66-05, GRPE-66-20, GRPE-66-26 and GRPE-66-27

50. The Chair of the informal group on GFV reported on the work progress made by the group (GRPE-66-26). He explained that the work of the Heavy Duty Dual-Fuel Task Force (HDDF TF) focused on the proposals discussed under agenda items 4(c) (UN Regulation No. 49). The GFV group also developed the proposals discussed under agenda item 5 (UN

Regulation No. 115) and the request by the Working Party on General Safety (GRSG) to GRPE to review, with respect to environmental issues, the proposal to amend UN Regulation No. 110 (specific equipment for CNG/LNG) adopted at its 104th session (GRPE-66-05). He explained that forthcoming work of the GFV group will be aimed to develop a new UN Regulation for heavy duty dual-fuel retrofit.

51. Focusing on the GRSG request, the GFV Chair briefly introduced GRPE-66-20 and GRPE-66-27, prepared by the Liquefied Natural Gas Task Force (LNG-TF). The documents contain information on environmental aspects underlying the GRSG request to GRPE concerned the issue of venting Liquefied Natural Gas (LNG) into the atmosphere.

52. The expert from Italy supported the proposal to develop a new UN Regulation for heavy-duty dual-fuel retrofit. The expert from OICA underlined the need to make sure that the scope of this new UN Regulation is restricted, initially, to heavy duty road vehicles and diesel-gas fuels. The possibility to broaden its boundaries (e.g. to non-road mobile machinery) shall be explored at a later stage.

53. GRPE acknowledged the progress made by the group, endorsed its proposal to develop a new UN Regulation for heavy-duty dual-fuel retrofit, and, considering the GRSG request, agreed that no regulatory action with respect to the environmental issues shall be taken. GRSG will be informed through the GRPE report.

X. Motorcycles and mopeds (agenda item 9)

A. Environmental and Propulsion Performance Requirements (EPPR) for L-category vehicles

Documentation: Informal documents GRPE-66-11, GRPE-66-12 and GRPE-66-31

54. The Chair of the EPPR group introduced GRPE-66-11, updating the terms of reference and rules of procedure of the informal group considered by GRPE in January 2013, aiming for an approval. Presenting GRPE-66-31, he outlined the main areas of work, provided information on the ongoing discussions taking place in recent meetings, and illustrated a draft road map sketching the work of the group in the forthcoming months. Having underlined that the work address issues both under the 1998 and the 1958 agreement, he mentioned that evaporative emissions, OBD requirements and tailpipe emissions are the first priorities to be considered by the group.

55. The EPPR Chair introduced GRPE-66-12, containing the request for a mandate to amend UN GTR No. 2 and to develop new UN GTRs and UN Regulations in the area of Environmental and Propulsion Performance Requirements (EPPR) for light vehicles. He explained that this follows the ongoing revision of environmental and propulsion performance requirements for the type approval of L-category vehicles in the European Commission and aims to increase global harmonization on the subject.

56. Answering to the question raised by IMMA on the need for mandate to develop new UN GTRs, the EPPR Chair suggested following the same route undertaken for the UN GTR development, as in the case of OBD. Responding to a request for clarifications by the expert from Italy on the intentions of the EPPR group on vehicle classifications and the extension to mopeds of the WMTC, the EPPR Chair confirmed that there is an intention to redefine classifications and the scope of UN GTR No. 2, adding that detailed decisions on these subject require further discussions with interested stakeholders.

57. GRPE approved the updated EPPR terms of reference, as reproduced in Annex VI. GRPE also considered GRPE-66-12, supporting its submission for consideration by WP.29

and AC.3 in their next session and endorsing the request for a mandate to amend UN GTR No. 2, to develop new UN GTRs (if necessary), and to amend and/or develop UN Regulations.

B. UN Regulations Nos. 40 (emission of gaseous pollutants by motor cycles) and 47 (emission of gaseous pollutants of mopeds)

58. GRPE did not receive any new proposal to amend UN Regulations Nos. 40 and 47.

C. UN GTR No. 2 (World-wide Motorcycle emissions Test Cycle (WMTC))

59. GRPE did not receive any new proposal to amend UN GTR No. 2.

**XI. Electric Vehicles and the Environment (EVE)
(agenda item 10)**

Documentation: Informal documents GRPE-66-38

60. The secretary of the informal group on EVE introduced GRPE-66-38, reporting on recent meetings and the development of the regulatory reference guide. He gave details on the review of a questionnaire, the use of definitions, the involvement of OICA in the review process and the drafting phase. He underlined the importance of coordination with other GRPE working groups, mentioning specifically the VPSD, WLTP, HDH and EPPR. The group is now considering potential regulatory gaps concerning vehicle energy efficiency and range, battery performance and durability. Regulatory incentives, standards, and electric vehicle charging will also be included in the guide. Having invited stakeholders to submit information that can contribute to the improvement of the recommendations, he concluded with a brief overview on the forthcoming meetings and activities of the group.

61. GRPE acknowledged the progress made by the group.

**XII. Vehicle Propulsion System Definitions (VPSD)
(agenda item 11)**

Documentation: Informal documents GRPE-66-29

62. The Chair of GRPE and the VPSD informal group introduced GRPE-66-29, containing a report on the development of a framework system of definitions regarding vehicles, powertrains, energy converters (e.g. internal combustion engine, electric machine, fuel cell), and energy storage systems (e.g. fuel tank, fuel cylinders, battery). The definitions, developed in close cooperation with WLTP, will be submitted to GRPE, WP.29 and AC.3 to be introduced as annexes to R.E.3 and S.R.1. This will be accompanied by an explanatory report on the VPSD work. The terms and structure of the main definitions are now agreed, even if some open issues are still under consideration. A document will be submitted to GRPE in January 2014.

63. GRPE acknowledged the progress made by the group and agreed to submit to WP.29 the request for an extension of its mandate to March 2014.

XIII. Fuel Quality (FQ) (agenda item 12)

64. Following a summary of the GRPE Chair, recalling that recommendations on fuel quality have been included in R.E.3 and S.R.1, the expert from OICA underlined the importance to link cleaner vehicles with cleaner fuels. He stressed that the latter are enabling the introduction of effective pollutant emission control technologies on the former and reported that an informal document on these issues will be submitted to the next ordinary session of GRPE, in January 2014.

65. GRPE agreed to maintain fuel quality on the agenda of its next ordinary session.

XIV. International Whole Vehicle Type Approval (IWVTA) (agenda item 13)

Documentation: Informal documents GRPE-66-13 and GRPE-66-33

66. Having acknowledged the withdrawal of the comments from OICA (GRPE-66-33), the IWVTA ambassador introduced GRPE-66-13. He recalled that the sixty-sixth GRPE session represents a deadline for GRPE to decide about the level of priority of the UN Regulations listed in GRPE 66-13. He reminded GRPE about the need to review the candidate items applicable to IWVTA and recalled the necessity to identify sponsors for the development of each IWVTA candidate item. He did not receive any comment from Contracting Parties on changes to the expected amendments of UN Regulations.

67. The expert from OICA confirmed the withdrawal of GRPE-66-33 and expressed agreement with the A-priorities outlined in GRPE-66-13.

68. Reviewing the candidate items, GRPE confirmed that the indications on the priorities contained in GRPE-66-13 are correct. GRPE considered that the sponsors for items No. 52 and 56 cannot be identified until the WLTP UN GTR is adopted and transposed in UN Regulations Nos. 83 and 101 or into a new UN Regulation. The IWVTA requirements will need to be taken into account at the moment of transposition of the WLTP UN GTR. The sponsors in charge of the transpositions will be in charge of assuring the coherence with the IWVTA requirements.

XV. Recyclability (agenda item 14)

Documentation: ECE/TRANS/WP.29/2013/50,
Informal documents GRPE-66-37 and GRPE-66-41

69. Following the GRPE session of January 2013, ECE/TRANS/WP.29/2013/50, containing a proposal for a new Regulation on recyclability of motor vehicles, has been submitted for consideration to the session of WP.29 to be held on 25-28 June 2013.

70. The expert from the Russian Federation introduced GRPE-66-37, containing a proposal to include provisions on the inclusion of labelling of plastic components and the release of information on the use of heavy metals. The expert from OICA introduced GRPE-66-41, containing some changes to the proposal in GRPE-66-37. He suggested some modifications for the labelling of plastic components, and more substantial amendments on heavy metals. The latter suggest addressing the management of material and substance restrictions for lead, mercury, cadmium, hexavalent chromium through contractual arrangements with suppliers, in order to avoid substantial administrative burdens. The expert from the EC announced the EC availability to discuss the proposed amendments with the aim to find a suitable compromise. He also reported that, due to administrative

issues, the EC will not be in the position to vote for this UN Regulation in the June 2013 session of WP.29.

71. GRPE invited interested stakeholders to reach an agreement, encouraging them to do so before the next WP.29 in June 2013. If agreement is reached, GRPE expressed its support for an adoption by WP.29 in November 2013. This proposal will be transmitted back to GRPE in January 2014 for further consideration if an agreement is not reached amongst the interested parties.

XVI. 1997 Agreement (periodical technical inspections): UN Rule No. 1 (environment protection) (agenda item 15)

Documentation: ECE/TRANS/WP.29/2013/64

72. As required by WP.29, GRPE considered a proposal to amend UN Rule No. 1 (ECE/TRANS/WP.29/2013/64). The Contracting Parties of the 1997 Agreement did not express negative comments on it. GRPE endorsed the proposal.

XVII. Exchange of information on emission requirements (agenda item 16)

73. GRPE did not receive any new proposal to share information under this agenda item. As agreed while discussing agenda item 4(a), GRPE invited the expert from the EC to provide an update on the European policy concerning CO₂ emissions from heavy duty vehicles in the next ordinary GRPE session, in January 2014.

XVIII. Election of officers (agenda item 17)

74. In compliance with Rule 37 of the Rules of Procedure (TRANS/WP.29/690 and Amend.1), and taking into account for the extraordinary nature of the GRPE session scheduled for November 2013, GRPE unanimously re-elected Mr. C. Albus (Germany) and Mr. S. R. Marathe (India) as its Chair and Vice-Chair, respectively, for the sessions of the year 2014. They will also remain in charge for the extraordinary GRPE session of November 2013.

XIX. Other business (agenda item 18)

A. Vehicles Indoor Air Quality (VIAQ)

Documentation: Informal documents GRPE-66-03 and GRPE-66-40

75. The expert from Korea introduced GRPE-66-03, containing a proposal to develop a new UN GTR on Vehicles Indoor Air Quality (VIAQ), in order to secure consumers' health and safe driving environment against harmful substances, minimizing emission of the harmful substances upon manufacturing vehicles. The proposal was supported by a presentation (GRPE-66-40) on recent research on the subject.

76. The expert from the USA expressed his interest in the proposal. Answering specific questions from the experts from the USA and the Russian Federation, the expert from Korea clarified that the tests for vehicle indoor air quality were carried out on new vehicles and in laboratory conditions.

77. GRPE agreed to report on this proposal to WP.29 in June 2013. GRPE also recalled that the requests for mandates to amend and/or develop UN GTRs shall be submitted directly by contracting parties to WP.29 and AC.3, inviting Korea to do so.

B. Carcinogenicity of diesel engine exhaust gases

Documentation: Informal document GRPE-66-09-Rev.1

78. The secretariat introduced GRPE-66-09-Rev.1, a revised draft paper looking at diesel vehicles and engines in the context of air quality, impacts of the emission of pollutants on the environment and health. The secretariat explained that the paper, based on GRPE-65-05, incorporates the comments received by the end of March 2013, as agreed during the GRPE session of January 2013. In particular, it includes an update of information related with WP.29 activities, a reorganization of the contents to improve the presentation of the policy discussion, an extension of the geographical scope to include information on North America and Japan, and the inclusion of conclusions and recommendations.

79. Canada, the Russian Federation and OICA welcomed the improvements in the document. A number of comments were addressed to the secretariat by these delegations and Euromot. They concerned the importance of fuel quality as enabler of cleaner vehicle technologies, the opportunity to consider particulate emissions from tyres, the need to update the information on the PMP activities – taking into account the updated scope of the PMP group, the correction of specific statements, as well as other issues addressing the WHO decisions. Having reiterated the need to restrict the paper to technical matters without questioning the WHO conclusions, the secretariat welcomed the comments and invited interested stakeholders to provide constructive contributions in a written form within a week, in order to have the time to include them in an updated version of the document for consideration by WP.29 in its June 2013 session. The GRPE Chair underlined the need to make sure that the comments provide constructive contributions to improve the paper. The expert from Germany supported the inclusion of a recommendation concerning cleaner fuels as enablers of technologies allowing the emission mitigation.

80. GRPE supported the document. Taking into account of the tight schedule needed for the consideration of the document in the UN framework, GRPE agreed that the secretariat should submit an updated version of the document to WP.29 for consideration at its next session (June 2013), taking into account the comments that will be received.

C. Tributes

81. Learning that Mr. Yannick Souchet (France) and Mr. Aldo Bassi (Italy) would no longer attend the sessions because of their retirement, GRPE acknowledged their considerable contributions to the activities of the group and wished them all the best.

XX. Provisional agenda for the next sessions

A. Next extraordinary GRPE session

82. The sixty-seventh GRPE session is an extraordinary session, scheduled to be held in Geneva, Palais des Nations, starting on Thursday, 14 November 2013, from 2.30 p.m. to 5.30 p.m:

1. Adoption of the agenda.

2. Worldwide harmonized Light vehicles Test Procedures (WLTP)
3. Other business.

B. Next ordinary GRPE session

83. The sixty-eighth GRPE session is the next ordinary GRPE session. It is scheduled to be held in Geneva, Palais des Nations, starting on Tuesday, 7 January 2014, at 9.30 a.m. until Friday, 10 January, 2014 at 12.30 p.m., subject to confirmation by the secretariat (see GRPE-68-01).

C. Provisional agenda for the next ordinary GRPE sessions proper

84. The next ordinary GRPE proper session is scheduled to be held on Thursday, 9 January 2014, from 9.30 a.m. until Friday, 10 January 2014, 12.30 p.m.:

1. Adoption of the agenda.
2. Report on the last session of the World Forum for Harmonization of Vehicle Regulations (WP.29).
3. Light vehicles:
 - (a) Worldwide harmonized Light vehicles Test Procedures (WLTP);
 - (b) Mobile Air-Conditioning Test Procedure (MACTP);
 - (c) UN Regulations Nos. 68 (measurement of the maximum speed, including electric vehicles), 83 (emissions of M₁ and N₁ vehicles), 101 (CO₂ emissions/fuel consumption) and 103 (replacement pollution control devices).
4. Heavy duty vehicles:
 - (a) Heavy Duty Hybrids (HDH);
 - (b) Retrofit Emissions Control devices (REC);
 - (c) UN Regulation No. 49 (emissions of compression ignition and positive ignition (LPG and CNG) engines);
 - (d) UN Global Technical Regulations (GTRs) 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)).
5. UN Regulations Nos. 85 (measurement of the net power and the 30 min. power) and 115 (LPG and CNG retrofit systems).
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 GTR No. 11 (engines).
7. Particle Measurement Programme (PMP).
8. Gaseous Fuelled Vehicles (GFV).
9. Motorcycles and mopeds:

- (a) Environmental and Propulsion Performance Requirements (EPPR) for L-category vehicles;
 - (b) UN Regulations Nos. 40 (emission of gaseous pollutants by motor cycles) and 47 (emission of gaseous pollutants of mopeds);
 - (c) UN GTR No. 2 (World-wide Motorcycle emissions Test Cycle (WMTC)).
10. Electric Vehicles and the Environment (EVE).
 11. Vehicle Propulsion System Definitions (VPSD).
 12. Fuel Quality (FQ).
 13. International Whole Vehicle Type Approval (IWVTA).
 14. Recyclability.
 15. Vehicles Indoor Air Quality (VIAQ).
 16. 1997 Agreement (periodical technical inspections): UN Rule No. 1 (environment protection).
 17. Exchange of information on emission requirements.
 - (a) European heavy duty CO₂ emission policy.
 - (b) Other exchanges.
 18. Other business.

D. Informal meetings in conjunction with the next ordinary GRPE session

85. The informal meetings in conjunction with the next ordinary GRPE session proper (January 2014) will be held according to the following table:

<i>Date</i>	<i>Time</i>	<i>Group</i>
7 January 2014	9:30 a.m. - 12:30 p.m.	Heavy Duty Hybrids (HDH)
	9:00 a.m. - 11:00 a.m.	Mobile Air Conditioning Test Procedure (MACTP)
	11:00 a.m. - 1:00 p.m.	Vehicle Propulsion System Definitions (VPSD)
	2:30 p.m. - 5:30 p.m.	Gaseous Fuelled Vehicles (GFV)
	2:30 p.m. - 5:30 p.m.	Electric Vehicles and the Environment (EVE)
8 January 2014	9:30 a.m. - 12:30 p.m.	Retrofit Emission Control devices (REC)
	9:00 a.m. - 1:00 p.m.	Worldwide harmonized Light vehicles Test Procedure (WLTP)
	2:30 p.m. - 5:30 p.m.	Particle Measurement Programme (PMP)
	2:30 p.m. - 5:30 p.m.	Environmental and Propulsion Performance Requirements of L-category vehicles (EPPR)
9 January 2014	9:30 a.m. - 5:30 p.m.	GRPE proper (GRPE)
10 January 2014	9:30 a.m. - 12:30 p.m.	GRPE proper (GRPE)

86. The agendas of these meetings will be prepared by the respective secretaries and distributed to the members of each group prior to each meeting. All these meetings will be held without interpretation.

Annex I

List of informal documents distributed without an official symbol

<i>GRPE-66-</i>	<i>Transmitted by</i>	<i>Agenda item</i>	<i>Language</i>	<i>Title</i>	<i>Follow-up</i>
01-Rev.2	Secretariat	1	E	Informal meetings in conjunction with the GRPE session proper: room reservations and schedule	(a)
2	WLTP	3(a)	E	Draft GTR on WLTP	(c)
3	Korea	18(a)	E	Proposal for a new UN GTR on Vehicles Indoor Air Quality (VIAQ)	(a)
4-Rev.1	EC	3(c)	E	Proposal for an amendment to the 07 series of amendments to UN Regulation No. 83 (ECE/TRANS/WP.29/GRPE/2013/11)	(c)
5	Secretariat	8	E	Proposal for Supplement 1 to the 01 series of amendments to UN Regulation No. 110 (specific equipment for CNG/LNG) (as agreed by GRSG at its 104th session)	(a)
6	REC	4(b)	E	Flow charts explaining the annexes of the draft REC UN Regulation version 00 (for incorporation into ECE/TRANS/WP.29/GRPE/2013/06, amending it)	(a)
7	REC	4(b)	E	Proposal for an amendment to the new UN Regulation on uniform provisions concerning the approval of Retrofit Emission Control devices for heavy duty vehicles	(c)
8	REC	4(b)	E	Memo of the chair of the GRPE informal Group on Retrofit Emission Control devices	(a)
9-Rev.1	Secretariat	18(b)	E	Update on the draft paper looking at diesel vehicles and engines in the context of air quality, impacts of the emission of pollutants on the environment and health	(a)
10	European Commission	4(c)	E	Proposal to introduce changes to ECE/TRANS/WP.29/GRPE/2013/8 and new amendments to the 06 series of amendments to Regulation No. 49	(b)
11	European Commission	9(a)	E	Terms of reference and rules of procedure for the Informal Working Group on Environmental and Propulsion Performance Requirements for L-category vehicles (EPPR)	(b)
12	European Commission	9(a)	E	Request for a mandate to amend UN GTR No. 2 and to develop new UN GTRs and UN Regulations in the area of Environmental and Propulsion Performance Requirements (EPPR) for light vehicles	(a)
13	IWTA Ambassador	13	E	Priority of discussion on technical requirements for IWVTA and draft report to informal meeting	(a)
14-Rev.1	Secretariat	1	E	General information on GRPE	(a)

15	Secretariat	2	E	Report on the last session of the World Forum for Harmonization of Vehicle Regulations	(a)
16	OICA	3(c)	E	Proposal to amend the 06 series of amendments to UN Regulation No. 83	(c)
17	OICA	3(c)	E	Proposal for amendments to draft Supplement 3 to the 01 series of amendments to UN Regulation No. 101 (ECE/TRANS/WP.29/GRPE/2013/9)	(b)
18-Rev.3	Secretariat	1	E	Updated agenda	(a)
19	GFV	5	E	Proposal for an amendment to UN Regulation No. 115	(b)
20	GFV	8	E	Information supporting LNG vehicle amendments to UN Regulation No. 110	(a)
21-Rev.1	PMP	7	E	Progress update	(a)
22	EC	3(c)	E	Transposition of Euro 6 requirements into UN Regulation No. 83 & Proposed amendments to UN Regulations Nos. 101 and 103	(a)
23	HDH	4(a)	E	Informal group on Heavy Duty Hybrids: report to GRPE	(a)
24	HDH	4(a)	E	Status of the informal group on Heavy Duty Hybrids	(a)
25	GFV	4(c)	E	Proposal for Supplement 6 to the 05 series of amendments to Regulation No. 49 (ECE/TRANS/WP.29/GRPE/2013/7): amendments and complements	(b)
26	GFV	8	E	Report to GRPE	(a)
27	GFV	8	E	Information about LNG Vehicles for GRPE at the request of the GRSG	(a)
28	REC	4(b)	E	Proposal for an amendment to ECE/TRANS/WP.29/GRPE/2013/6	(b)
29	VPSD	11	E	Status report to 66 th GRPE	(a)
30	PMP	7	E	Terms of reference and rules of procedure for the Informal Working Group on the Particle Measurement Programme	(b)
31	EPPR	9(a)	E	Report from IWG on Environmental and Propulsion Performance Requirements for Light vehicles	(a)
32	OICA	3(c)	E	Proposal to amend ECE/TRANS/WP.29/GRPE/2013/11 on Regulation No. 83 (emissions of M ₁ and N ₁ vehicles)	(c)
33 (withdrawn)	OICA	13	E	Comments about GRPE draft candidate items applicable to IWVTA, presented in GRPE-65-19	(a)
34-Rev.1	WLTP-DHC	3(a)	E	Progress Report of World-wide Light-duty Test Cycle and Mode Construction	(a)
35-Rev.1	OICA	4(c)	E	Proposal to introduce an amendment to GRPE working document ECE/TRANS/WP.29/GRPE/2013/8 and to GRPE informal document GRPE-66-10	(b)

36	WLTP-DTP	3(a)	E	WLTP-DTP 14th meeting and UN GTR drafting: progress report	(a)
37	Russian Federation	14	E	Proposal to amend document ECE/TRANS/WP.29/2013/50 (proposal for a new UN Regulation on recyclability of motor vehicles)	(a)
38	EVE	10	E	Report to GRPE	(a)
39	GFV	4(c)	E	Dual-fuel engines into the 05 series of amendments of Regulation 49 (Euro V)	(a)
40	Korea	18(a)	E	Presentation introducing a proposal for a new UN GTR for Vehicle Indoor Air Quality (VIAQ)	(a)
41	OICA	14	E	Proposal for amendments to document GRPE-66-37 by the Russian Federation (on the draft new Regulation on recyclability of motor vehicles)	(a)
42	REC	4(b)	E	Progress report to GRPE	(a)

Notes:

- (a) Consideration completed or to be superseded
- (b) Adopted and submitted to WP.29
- (c) Resume consideration on the basis of an official document

Annex II

[English only]

Informal meetings held in conjunction with the GRPE session

<i>Date</i>	<i>Time</i>	<i>Group</i>
3 June 2013	9:30 a.m. - 12:30 p.m.	Retrofit Emission Control devices (REC)
	2:30 p.m. - 5:30 p.m.	Electric Vehicles and the Environment (EVE)
4 June 2013	9:30 a.m. - 12:30 p.m.	Heavy Duty Hybrids (HDH)
	2:30 p.m. - 5:30 p.m.	Gaseous Fuelled Vehicles (GFV)
	9:30 a.m. - 5:30 p.m.	Worldwide harmonized Light vehicles Test Procedure (WLTP) – GTR drafting meeting
5 June 2013	9:30 a.m. - 5:30 p.m.	Worldwide harmonized Light vehicles Test Procedure (WLTP) - Development of the Test Procedure (DTP) and Development of the Harmonized driving Cycle (DHC)
7 June 2013	2:30 p.m. - 5:30 p.m.	Environmental and Propulsion Performance Requirements of L-category vehicles (EPPR)

Annex III

[English only]

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)	Petter Åsman, petter.asman@trafikverket.se	Thomas Vercammen, Thomas.Vercammen@honda-eu.com	June 2016
Electric Vehicles and the Environment (EVE) (group)	Michael Olechiw, Olechiw.Michael@epamail.epa.gov Chen Chunmei (vice-Chair), chencm@miit.gov.cn Kazuyuki Narusawa (vice-Chair), narusawa@ntsel.go.jp	Stéphane Couroux, stephane.couroux@ec.gc.ca	November 2014
Heavy Duty Hybrids (HDH) (group)	Petter Åsman, petter.asman@trafikverket.se	Jürgen Stein, hj.stein@daimler.com	June 2014
Gaseous Fuelled Vehicles (GFV) (group)	André Rijnders, arijnders@rdw.nl	Jeffrey Seisler, jseisler@cleanfuelsconsulting.org Salvatore Piccolo, s.piccolo@federchimica.it	June 2014
Heavy Duty Dual-Fuel Task Force (HDDV TF) (task force)	Jean-François Renaudin, jean-francois.renaudin@volvo.com Henk Dekker, henk.j.dekker@tno.nl	Jeffrey Seisler, jseisler@cleanfuelsconsulting.org	June 2014
Liquefied Natural Gas Task Force (LNG TF) (task force)	Paul Dijkhof, Paul.Dijkhof@kiwa.nl	Jeffrey Seisler, jseisler@cleanfuelsconsulting.org Jaime Del Alamo, jaime.alamo@ngvaeurope.eu	June 2014
Mobile Air Conditioning Test Procedure (MACTP) (group)	André Rijnders, arijnders@rdw.nl	Hanns-Peter Bietenbeck, hbietenb@ford.com Caroline Hosier, chosier@ford.com	June 2014
Particle Measurement Programme (PMP) (group)	Giorgio Martini, giorgio.martini@jrc.ec.europa.eu	Caroline Hosier, chosier@ford.com	June 2017 (to be confirmed by WP.29)
Retrofit Emission Control devices (REC) (group)	Henk Baarbé, henk.baarbe@minienm.nl	Dirk Bosteels, dirk.bosteels@aecc.be	June 2014
Vehicle Propulsion System Definitions (VPSD) (group)	Christoph Albus, christoph.albus@bmvbs.bund.de	Daniela Leveratto, dleveratto@oica.net	March 2014 (to be confirmed by WP.29)

<i>Name (Acronym) (Status)</i>	<i>Chair or Co-chairs</i>	<i>Secretaries</i>	<i>End of mandate</i>
Worldwide harmonized Light vehicles Test Procedure (WLTP) (group)		Noriyuki Ichikawa (technical secretary), nick@ichikawa.tec.toyota.co.jp	March 2014
Development of the Harmonized driving Cycle (DHC) (subgroup)	Hajime Ishii, ishii@ntsel.go.jp	Noriyuki Ichikawa, nick@ichikawa.tec.toyota.co.jp	March 2014
Development of the Test Procedure (DTP) (subgroup)	Giovanni D'Urbano, giovanni.durbano@bafu.admin.ch	Jakob Seiler, seiler@vda.de	March 2014
Validation Task Force (VTF) (subgroup task force)	Alessandro Marotta, alessandro.marotta@jrc.ec.europa.eu		March 2014
Lab Process-Electric Vehicles (LabProcEV) (subgroup subgroup)	Kazuki Kobayashi, ka-koba@shinsa.ntsel.go.jp Per Olund, per.ohlund@transportstyrelsen.se		March 2014
Lab Process-Internal Combustion Engines (LabProcICE) (subgroup subgroup)	Stephan Redmann, Stephan.Redmann@bmvbs.bund.de Beatrice Lopez, beatrice.lopez@utac.com Konrad Kolesa, Konrad.Kolesa@audi.de		March 2014
Additional Pollutants (AP) (subgroup subgroup)	Astorga Covadonga, covadonga.astorga-llorens@jrc.ec.europa.eu Oliver Moersch, oliver.moersch@daimler.com		March 2014
Particulate Mass-Particle Number (PM-PN) (subgroup subgroup)	Caroline Hosier, chosier@ford.com Celine Vallaude, celine.vallaude@utac.com		March 2014
Reference Fuel (RF) (subgroup subgroup)	William Coleman, william.coleman@volkswagen.de		March 2014

Annex IV

Proposal for Supplement 6 to UN Regulation No. 115

Annex 6A, paragraph 2, amend to read:

- "2. Calculation of the LPG energy ratio
- The fuel consumption value shall be calculated from the emissions of hydrocarbons, carbon monoxide, and carbon dioxide determined from the measurement results assuming that only LPG is burned during the test.
- The LPG ratio of the energy consumed in the cycle is then determined as follows:
- $$G_{LPG} = M_{LPG} * 10000 / (FC_{norm} * dist * d)$$
- Where:
- G_{LPG} : the LPG energy ratio (%);
- M_{LPG} : the LPG mass consumed during the cycle (kg);
- FC_{norm} : the fuel consumption (l/100 km) calculated in accordance with paragraph 1.4.3. (b) of Annex 6 to Regulation No. 101. If applicable, the correction factor cf in the equation used to determine FC_{norm} shall be calculated using the H/C ratio of the gaseous fuel;
- dist: distance travelled during the cycle (km);
- d: density $d=0.538\text{kg/liter}$."

Annex 6B, paragraph 2, amend to read:

- "2. Calculation of the CNG energy ratio
- The fuel consumption value shall be calculated from the emissions of hydrocarbons, carbon monoxide, and carbon dioxide determined from the measurement results assuming that only CNG is burned during the test.
- The CNG ratio of the energy consumed in the cycle is then determined as follows:
- $$G_{CNG} = M_{CNG} * cf * 10000 / (FC_{norm} * dist * d)$$
- Where:
- G_{CNG} : the CNG energy ratio (%);
- M_{CNG} : the CNG mass consumed during the cycle (kg);
- FC_{norm} : the fuel consumption ($\text{m}^3/100\text{ km}$) calculated in accordance with paragraph 1.4.3. (c) of Annex 6 to Regulation No. 101;
- dist: distance travelled during the cycle (km);
- d: density $d=0.654\text{kg/m}^3$;
- cf: correction factor, assuming the following values:
- $cf = 1$ in case of G20 reference fuel;
- $cf = 0.78$ in case of G25 reference fuel."

Annex V

Terms of reference and rules of procedure for the Informal Working Group on the Particle Measurement Programme (PMP)

1. Background
 - 1.1. Since the inception of the Particle Measurement Programme (PMP) group, the activities focused on development of an alternative metric with increased sensitivity compared to the existing Particulate Matter (PM) mass measurement system for Heavy Duty (HD) and Light Duty (LD) engines/vehicles (M and N category vehicles).
 - 1.2. This phase concluded with the developed and adoption into UN Regulations Nos. 83 (emissions of M₁ and N₁ vehicles) (R83) and 49 (emissions of compression ignition and positive ignition (LPG and CNG) engines) (R49) of a particle number (PN) counting method for ultrafine solid particles, together with enhancements to the PM measurement procedure for R83. Initially the PN protocol was applied for diesel engines/vehicles only in the 06 series of amendments of R83 (R83.06) and R49 (R49.06) and subsequently has been extended to cover vehicles using spark ignition direct injection engines in R83.06.
2. Terms of reference
 - 2.1. The European Union (EU) and Switzerland have requested further investigation of particle number emissions from spark ignition engines relating to particle size (reduction of the 50 per cent cut off specification (d₅₀)) and to emissions under rich operation conditions. Further activities to adapt the procedures/measurement equipment and establish appropriate limit values may be necessary based on the results of these investigations.
 - 2.2. It has also been requested to consider whether there is a need to extend particle measurement procedures to additional sources such as tyre and brake wear. While the health effect investigation aspects are outside the competence of the measurement experts, the group should be prepared to take on development of measurement procedures if a clear need is established.
 - 2.3. The group should prepare the update and integration of test procedure updates into UN Regulations Nos. 83, 49 and 96 (diesel emission (agricultural tractors)) as appropriate.
 - 2.4. The group may consider, at a later stage, the transposition of the developed procedures into the UN Global Technical Regulation (UN GTR) No. 4 and the expected forthcoming UN GTR covering the Worldwide harmonized Light vehicles Test Procedure (WLTP) and Test Cycle (WLTC).
3. Timeline
 - 3.1. The work of the group on Particle Measurement Programme should be completed by June 2017. A prolongation and extension of the mandate of the group, in relation to the development and validation of new test procedures, e.g. in relation to PN measurement systems compatible with PEMS, tyre/brake wear if necessary, should be considered in due time by GRPE.

4. Scope and work items
 - 4.1. PM mass exhaust measurement

Notes:

 - (a) HD engines/vehicles and Non-Road Mobile Machinery (NRMM) PM measurement are excluded from the PMP terms of reference, as they have recently been extensively revised in the respective UN GTRs. Further major technical adaptations are not foreseen in the near-term.
 - (b) LD vehicles are also excluded, owing to recent revisions into the WLTP draft UN GTR. Further major technical adaptations are not foreseen in the near-term.
 - 4.2. PN exhaust measurement
 - 4.2.1. The existing scope of PN measurements will be adapted to technical progress, as appropriate. The following options are covered:
 - (a) LD Compression Ignition (CI) engined vehicles.
 - (b) HD CI engines/vehicles.
 - (c) LD Positive Ignition (PI) direct injection engined vehicles.
 - (d) HD PI direct injection engines/vehicles.
 - 4.2.2. Extension of scope
 - (a) Investigate PN measurements for NRMM exhaust emissions. Prepare report for GRPE.
 - (b) Determine whether LD diesel regeneration measurements can be accurately, reliably, repeatably and reproducibly made using PMP equipment with $d_{50} = 23\text{nm}$.
 - (c) Investigate particle number emissions from vehicles equipped with PI direct injection engined vehicles during regeneration when vehicles with such technology are available on the market.
 - (d) Engine dynamometer raw exhaust PN measurements for HD for use at Type Approval.
 - 4.3. PN measurement equipment – HD and LD
 - 4.3.1. Existing PMP PN measurement equipment d_{50} reduction.
 - (a) Investigate, as a first step, the size distribution of particles emitted by LD PI and CI vehicles HD PI and CI engines/vehicles.
 - (b) Determine for both HD and LD engines/vehicles whether there is a clear need to revise the lower particle size d_{50} cut-off of the PMP of 23 nm.
 - (c) If so, determine appropriate revised d_{50} and develop practical/appropriate measurement methodology and establish revised PN limit values.
Objective: NRMM/HD/LD common measurement system.
 - (d) Determine whether LD diesel regeneration measurements can be accurately, reliably, repeatably and reproducibly made using the new cut-off size.
 - (e) Develop Type Approval raw exhaust PN measurement method suitable for engine dynamometer (HD and NRMM).

4.4. Calibration Guidelines

4.4.1. Update of existing calibration guidelines.

- (a) Review and update of the calibration guidance documents relating to the Particle Number Counting (PNC) and VPR (Volatile Particle Remover), taking into account of:
 - (i) technical progress;
 - (ii) the work of European Metrology Research Programme (EMRP) ENV-02;
 - (iii) ISO 27891;
 - (iv) VPR Round Robin (RR): fundamental calibration of the condensation particle counter (CPC) and recommendations on LD aerosols.
- (b) Compilation of relevant calibration literature and review for inclusion of best practices.
- (c) Review and update of the calibration guidelines for CPC and VPR if the lower particle size d_{50} cut-off of the PMP of 23 nm is reduced.

4.5. Investigations

- (a) Physical nature of exhaust particles emitted by PI and CI engined vehicles.
- (b) Exhaust particle emissions of port fuel injection vehicles, currently exempt from Euro 6 PN emission limits, in particular under rich operation conditions (e.g. cold start, high load).
- (c) Literature survey to compile and summarise the current knowledge regarding the physical nature and size distribution of particle emissions from brake and tyre wear.

5. Rules of procedure

- 5.1. The informal group is open to all participants of GRPE. A limitation of the number of participants from any country or organization to participate in the informal group is actually not foreseen.
- 5.2. A Chair and a secretary will manage the informal group.
- 5.3. The working language of the informal group will be English.
- 5.4. All documents and/or proposals shall be submitted to the secretary of the group in a suitable electronic format, preferably in line with the UNECE guidelines in advance of the meetings. The group may refuse to discuss any item or proposal which has not been circulated 5 working days in advance of the scheduled meeting.
- 5.5. The informal group shall meet regularly in conjunction with the GRPE sessions. Additional meetings will be organized upon demand.
- 5.6. An agenda and related documents will be circulated to all members of the informal group in advance of all scheduled meetings.
- 5.7. The work process will be developed by consensus. When consensus cannot be reached, the Chair of the informal group shall present the different points of view to GRPE. The Chair may seek guidance from GRPE as appropriate.
- 5.8. The progress of the informal group will be routinely reported to GRPE orally or as an informal document by the Chair or the secretary.
- 5.9. All working documents shall be distributed in digital format. The specific PMP section on the UNECE website shall continue to be utilised.

Annex VI

Terms of reference and rules of procedure for the Informal Working Group on Environmental and Propulsion Performance Requirements for L-category vehicles (EPPR)

1. Background
 - 1.1. This proposal to establish an informal working group on environmental and propulsion performance requirements for L-category vehicles aligns with a current initiative by the European Commission to revise type approval procedures for such vehicle types. L-category vehicle is the family name of light vehicles such as powered cycles, mopeds, motorcycles, tricycles and quadricycles. As part of the European Union's decision process, a proposal, three delegated acts and one implementing act are currently being drafted, including a Regulation on environmental and propulsion performance requirements (REPPR). The European Commission wishes, as far as possible, to replace the legislative text in the REPPR with references to international regulations, preferably UN Regulations, in order to increase global harmonization.
2. Terms of reference
 - 2.1. The informal working group will be open to all interested parties, including contracting parties and industry experts.
 - 2.2. The informal group will develop the means and resources to:
 - (a) understand the current regulatory position and requirements with respect to environmental and propulsion performance requirements for L-category vehicles in different markets;
 - (b) identify potential routes for amending or establishing UN Regulations and UN Global Technical Regulations (UN GTRs) to at least maintain, and ideally increase, current levels of harmonization;
 - (c) work both on UN Regulations under the 1958 and in particular 1998 Agreements, bearing in mind the need for technology neutral test procedures which do not discriminate against specific vehicle technologies or configurations;
 - (d) take into account the real-world representativeness of proposed test procedures;
 - (e) stay abreast of developing issues through regular dialogue and expert presentations.
3. Timeline
 - 3.1. The target completion date for the work of the informal group, and possible adoption of UN Regulation(s) and UN GTRs shall be the 169th session of WP.29 in June 2016.
4. Rules of procedure
 - 4.1. Rule 1: participation

The informal group is open to all participants of GRPE. There is no limit to the number of participants from any country and organization represented in GRPE.

4.2

Rule 2: sessions

- (a) Sessions shall be held on the basis of the timing approved by the GRPE. The Chair shall manage the various aspects of the work ensuring that the action plan approved by the GRPE is implemented properly and that milestones and timelines are set and met. The Chair or the secretariat shall inform participants of the date and location of meetings at least one month in advance.
- (b) Documents for discussions at meetings shall be submitted to the secretariat for distribution to the participants at least two weeks in advance of meetings. All documents will be posted on the UNECE GRPE website.

All documents and/or proposals shall be submitted to the secretary of the group in a suitable electronic format, preferably in line with the UNECE guidelines in advance of the meetings.

The group may refuse to discuss any item or proposal which has not been circulated at least 5 working days in advance of the scheduled meeting.

- (c) The secretariat shall circulate an agenda and related documents to all members of the informal group in advance of all scheduled meetings.
- (d) All working documents shall be distributed in digital format. A specific EPPR website shall be created and the URL circulated to all related parties.
- (e) The work process shall be developed by consensus. When consensus cannot be reached, the Chair of the informal group shall present the different points of view to GRPE. The Chair may seek guidance from GRPE as appropriate.
- (f) The progress of the informal group shall be routinely reported to GRPE orally or as an informal document by the Chairperson or the secretary.
- (g) The official language of the informal group shall be English.

4.3

Rule 3: Chair and secretariat

- (a) The informal group shall have a Chair and a secretary.
- (b) The secretariat shall provide administrative support for all sessions, including preparation of the session reports.