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World Forum for Harmonization of Vehicle Regulations

Working Party on Pollution and Energy

**REPORT OF THE WORKING PARTY ON POLLUTION AND ENERGY  
ON ITS FIFTY-SEVENTH SESSION  
(13 – 16 January 2009)**

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**I. ATTENDANCE**

1. The Working Party on Pollution and Energy (GRPE) held its fifty-seventh session from 13 to 16 January 2009, under the chairmanship of Mr. B. Gauvin (France). Experts from the following countries participated in the work following Rule 1(a) of the Rules of Procedure of

WP.29 (TRANS/WP.29/690, as amended): Austria; Belgium; Canada; China; Czech Republic; France; Germany; Hungary; India; Italy; Japan; Netherlands; Norway; Poland; Korea; Russian Federation; Serbia; South Africa; Spain; Sweden; Switzerland; United Kingdom of Great Britain and Northern Ireland; United States of America. Experts from the European Commission (EC) also participated. The United Nations Environment Programme (UNEP) was also represented. Experts from the following non-governmental organizations took part in the session: Association for Emission Control by Catalyst (AECC); European Association of Automobile Suppliers (CLEPA); Foundation for the Automobile and Society (FIA Foundation); International Association for Natural Gas Vehicles (IANGV); International Motorcycle Manufacturers Association (IMMA); International Organization for Standardization (ISO); International Organization of Motor Vehicle Manufacturers (OICA); Engine Manufacturers Association (EMA); European Association of Internal Combustion Engine Manufacturers (EUROMOT); European Liquefied Petroleum Gas Association (AEGPL); International Petroleum Industry Environment Conservation Association (IPIECA); Technical Committee of Petroleum Additive Manufacturers in Europe (ATC); The Oil Companies European Organization for Environment, Health and Safety (CONCAWE).

2. The informal documents distributed during the session are listed in Annex I to this report.

## **II. ADOPTION OF THE AGENDA (Agenda item 1)**

Documentation: ECE/TRANS/WP.29/GRPE/2009/1, Informal document No. GRPE-57-01-Rev.1

3. GRPE noted GRPE-57-01-Rev.1 regarding the organization of the GRPE working group meetings. GRPE adopted the agenda ECE/TRANS/WP.29/GRPE/2009/1 and added a new item 2(c) regarding amendments to heavy duty On-Board Diagnostic (OBD) systems.

## **III. REGULATION No. 49 (Emissions of C.I. and P.I. (NG and LPG) engines) (Agenda item 2)**

### **A. Off-Cycle Emissions (OCE) (Agenda item 2(a))**

Documentation: ECE/TRANS/WP.29/GRPE/2009/5, ECE/TRANS/WP.29/GRPE/2009/6, Informal documents Nos. GRPE-57-09, GRPE-57-10, GRPE-57-19 and GRPE-57-27

4. On behalf of the Chairman of the OCE working group, the expert from the United States of America informed GRPE about the results (GRPE-57-27) achieved by the informal group during its twenty-second session (held in Geneva prior to the GRPE session proper). He introduced ECE/TRANS/WP.29/GRPE/2009/5 proposing a draft global technical regulation (gtr) on OCE. He added that the informal group had agreed to include into the draft gtr the amendments proposed by OICA in document GRPE-57-10, but to postpone the inclusion of the amendments mentioned in GRPE-57-19 tabled by EMA.

5. GRPE adopted ECE/TRANS/WP.29/GRPE/2009/5, as amended below:

Paragraph 7.2.1., amend the text "... integrating period of time of 7.5 shall apply" to read "... integrating period of time **set out in paragraph 7.5.** shall apply".

Paragraph 7.5.1., amend to read:

"7.5.1. After **warm up** the engine shall be preconditioned at mode 9 of the WHSC for a **minimum** period of **10** minutes. The test sequence shall start immediately after completion of the preconditioning phase."

6. GRPE also adopted the report ECE/TRANS/WP.29/GRPE/2009/6, tabled by the United States of America, on the development of the OCE gtr. GRPE acknowledged the important work done by the OCE working group. The secretariat was requested to submit both documents adopted to WP.29 and the Executive Committee of the 1998 Agreement (AC.3), for consideration and vote at their June 2009 sessions, as a new draft gtr on OCE and its final report.

7. The expert from EC introduced GRPE-57-09 proposing to insert into Regulation No. 49 the adopted OCE requirements. GRPE agreed to submit the proposal, as amended by paragraph 5 above, to WP.29 and AC.1, for consideration at their June 2009 sessions, as new 06 series of amendments to Regulation No. 49, subject to a final review at the next session of GRPE in June 2009.

**B. Gtr No. 4 on the Worldwide harmonized Heavy Duty Certification (WHDC) procedure (Agenda item 2(b))**

Documentation: Informal documents Nos. GRPE-57-06, GRPE-57-07, GRPE-57-11 and GRPE-57-32

8. The Chairman of WHDC reported on the progress of work of its twenty-fifth and twenty-sixth informal group's sessions, held respectively in Beijing on 15-17 October 2008 and in Geneva prior to the GRPE session proper. Recalling the decision of AC.3 (see report ECE/TRANS/WP.29/1068, para. 67) on the limitation of the current mandate of the working group, the Secretary of WHDC informed GRPE that the informal group had already largely resolved options 1, 2 and 5 regarding the engine power, reference fuel as well as the particulate filter material and filter size (GRPE-57-06). He added that the informal group had even considered solutions for options 3 and 4 regarding the hot soak period and the cold start weighting factors. He expected that the group might reach an agreement for those options during the June 2009 session (GRPE-57-32).

9. With regard to the extension of the scope of gtr No. 4 to heavy duty gasoline engines, GRPE agreed with the position of WHDC to drop this issue from the current gtr and to seek regional regulations for such engines. The Secretary of WHDC introduced GRPE-57-07 proposing amendments to gtr No. 4 on WHDC. He underlined that the proposed text had been aligned with that of draft gtr on NRMM (see para. 25 below).

10. GRPE noted that the next meeting of WHDC would take place in Budapest, on 10-12 March 2009. During that meeting, the informal group will consider the remaining open issues and, subsequently, submit to the secretariat a final proposal to amend gtr No. 4, as well as a report justifying that amendment, for consideration as official documents during the next

session of GRPE in June 2009. GRPE agreed that WHDC should also meet prior to its next session (para. 53 below).

11. The expert from EC introduced GRPE-57-11, proposing amendments to align the text of Regulation No. 49 with that of the above-mentioned draft amendments to gtr No. 4. Following the discussion, he was invited to submit to the secretariat in due time an updated version of his proposal taking into account the results of the WHDC meeting in Budapest.

### C. Amendments to heavy duty OBD systems (Agenda item 2(c))

Documentation: Informal documents Nos. GRPE-57-15, GRPE-57-22, GRPE-57-25, GRPE-57-29 and GRPE-57-34

12. The expert from OICA announced his intention to prepare a Corrigendum to gtr No. 5 on heavy duty OBD systems with regard to a number of editorial errors. GRPE welcomed that proposal and invited all experts to communicate any errors to him in due time (jean-francois.renaudin@volvo.com).

13. On behalf of the informal group on Gaseous-Fuelled Vehicles (GFV), the expert from the Netherlands introduced GRPE-57-15 proposing to include into Annex 9B of Regulation No. 49 new requirements for gaseous-fuelled vehicles. He underlined the need to extend the monitoring requirements of the Regulation with respect to gaseous-fuelled engines and suggested setting up a specific task force on this issue (GRPE-57-34).

14. GRPE supported that suggestion and agreed to extend the terms of reference of the GFV informal group (see report ECE/TRANS/WP.29/GRPE/55, Annex IV) as follows:

Insert a new item 3(c), to read:

**"(c) To create a specific Task Force dealing with OBD and other related issues for heavy duty vehicles and engines using gaseous and non-gaseous fuels for developing draft amendments to Regulation No. 49."**

15. The expert from OICA introduced GRPE-57-29 proposing to include in Regulation No. 49 technical requirements for assessing the in-use performance of heavy duty OBD systems. GRPE agreed to insert these requirements as a new Annex 9C. The expert from OICA was invited to complete his proposal and to submit it in due time to the secretariat for consideration as an official document at the next session of GRPE in June 2009.

16. Referring to GRPE-57-22, the expert from EC announced his intention to submit, in parallel with the amendments to Regulation No. 83 introducing the new Euro 5/6 requirements (paras. 36-38 below), a proposal for amendments to align the scope of Regulation No. 49.

17. The expert from the Russian Federation proposed to insert special transitional provisions to allow Contracting Parties to continue, under certain conditions, to grant approvals of vehicles (engines) according to the former 04 or 05 series of amendments to Regulation No. 49 (GRPE-57-25). The expert from EC questioned the need for such provisions and raised a

study reservation. The Chairman invited the expert from EC to take into account, if acceptable, the proposal by the Russian Federation when preparing his proposal for amendments.

#### **IV. PARTICLE MEASUREMENT PROGRAMME (PMP) (Agenda item 3)**

18. The Chairman of PMP working group, Mr. C. Parkin (United Kingdom), reported that the validation and round robin tests were delayed and, therefore, still in progress. He expected the completion of the tests in June or July 2009. He added that further discussions on the calibration of volatile particulates were necessary. He announced his intention to organize another meeting in March 2009.

19. Upon the request of the PMP Chairman, GRPE agreed that PMP should also meet prior to the next session of GRPE (para. 53 below) in June 2009.

#### **V. GTR No. 2 ON THE WORLDWIDE HARMONIZED MOTORCYCLE EMISSION TEST CYCLE (WMTC) (Agenda item 4)**

Documentation: ECE/TRANS/WP.29/GRPE/2009/2, ECE/TRANS/WP.29/GRPE/2009/4, Informal documents Nos. GRPE-57-03, GRPE-57-05, GRPE-57-13, GRPE-57-14, GRPE-57-20 and GRPE-57-28

20. The Chairman of WMTC introduced ECE/TRANS/WP.29/GRPE/2009/2 proposing to correct and improve in gtr No. 2 the provisions on gear-shift prescriptions. GRPE noted a number of corrections tabled by India, Japan and IMMA in GRPE-57-05, GRPE-57-13, GRPE-57-20 and GRPE-57-28. GRPE adopted ECE/TRANS/WP.29/GRPE/2009/2 and requested the secretariat to submit both parts of the proposal, as amended by the informal documents, to WP.29 and AC.3, for consideration at their June 2009 session, as Corrigendum 1 to Amendment 1 to gtr No. 2, respectively as Corrigendum 1 to gtr No. 2.

21. Referring to ECE/TRANS/WP.29/GRPE/2009/4, the expert from Germany also informed GRPE about the progress made by WMTC on the introduction of performance requirements into the gtr. The expert from IMMA suggested inserting into the gtr two sets of requirements (GRPE-57-03), e.g. a set of global performance requirements (most stringent ones), as well as a set of alternative requirements, which could be accepted by those Contracting Parties for whom such conditions would be more suitable.

22. The expert from India supported the proposal by IMMA in principle, but he preferred to adopt the second set of performance requirements also as global ones, applicable to regions which give a priority to fuel economy and reduction of CO<sub>2</sub> emissions (GRPE-57-14). He announced the intention of his government to introduce into their national legislation limit values for CO<sub>2</sub> emissions. The experts from EC and Japan clarified that Contracting Parties would have to opt for the first or second set of requirements when transposing the gtr into national or regional legislation.

23. The expert from EC announced the intention of his organization to set up new emissions limit values for motorcycles by 2010. He preferred to consider this step in parallel with the

amendment to gtr No. 2. The expert from Germany lined out that, in this case, WMTC would have to finalize the draft proposal already in 2009.

24. Following the discussion, GRPE agreed on the principle to insert into gtr No. 2 two sets of performance requirements and invited WMTC to prepare a proposal for consideration at the next session of GRPE in June 2009. For that purpose, the GRPE Chairman suggested that the WMTC group should also meet prior to that session (para. 53 below).

## **VI. EXHAUST EMISSION TEST PROTOCOL FOR NON-ROAD MOBILE MACHINERY (NRMM) (Agenda item 5)**

Documentation: Informal documents Nos. GRPE-57-21 and GRPE-57-35

25. On behalf of the Chairman of NRMM, the expert from EC reported on the progress of work (GRPE-57-35) made by the group during its meeting prior to the session of GRPE (see Annex II to this report). Referring to GRPE-57-21, he presented the draft gtr on NRMM. He confirmed the group's intention to finalize the draft gtr by March 2009 and to prepare the final report on the development of the gtr, both for consideration by GRPE at its next session on the basis of official documents. He added that the guidance document, which would back-up the NRMM gtr, was expected to be submitted to GRPE in June 2009 as an informal document. GRPE agreed on the proposal as well as the indicated time line and suggested that the NRMM working group should meet again prior to the next session of GRPE in June 2009 (para. 53 below).

26. The expert from EC welcomed the good progress of work made by the NRMM group. He announced the intention of his organization to review and simplify, after the establishment of the NRMM gtr into the Global Registry in November 2009, the corresponding EU Directive.

## **VII. AMENDMENTS TO UNECE REGULATIONS (Agenda item 6)**

### **A. Worldwide harmonized Light vehicles Test Procedures (WLTP) (Agenda item 6(a))**

Documentation: Informal document No. GRPE-57-31

27. The Secretary of WLTP informed GRPE about the progress made by the group at its second meeting, held prior to the GRPE session proper (GRPE-57-31). He recalled the need to seek the advice of AC.3 regarding the insertion into the gtr of provisions for durability and in-service testing, as no provisions on administrative procedures were mentioned in the 1998 Agreement. He announced the commitment by China, the EC, India, Japan and the United States of America to participate in the in-use data collection. He recalled the need to seek AC.3's advice to include or not provisions regarding the durability test and in-use compliance. He presented a time schedule for the finalization of the WLTP road map and expected its adoption by GRPE at the June 2009 session on the basis of an informal document. The expert from EC underlined the importance and urgency to develop the gtr on WLTP. He added that the goal of his organization was to set up the new WLTP test cycle by 2014. He offered to host both meetings of the WLTP drafting group in Brussels on 19 March and 27 April 2009.

28. The Chairman of WLTP recalled the political urgency to develop new test cycles for light vehicles, as expressed by ministers at the first International Transport Forum (ITF) in Leipzig in May 2008, by the International Energy Agency (IEA) Conference in Paris in September 2008 and, recently, at the Ministerial Conference on Global Environment and Energy in Transport (MEET) in Tokyo in January 2009.

29. The GRPE Chairman announced his intention to present the final road map to WP.29 and AC.3 during their June 2009 sessions and underlined the need to define, at latest during the same sessions, the technical sponsors of the WLTP gr. GRPE agreed that WLTP should meet again prior to the next session of GRPE (para. 53 below).

### **B. Gaseous-Fuelled Vehicles (GFV) (Agenda item 6(b))**

Documentation: Informal document No. GRPE-57-33

30. The Chairman of the informal group on Gaseous-Fuelled Vehicles (GFV), Mr. A. Rijnders (Netherlands), reported on the work progress (GRPE-57-33) made by the group at its meetings, held respectively on 30 September 2008 and prior to the GRPE session proper (see Annex II to this report). He recalled the need to set up a task force on OBD for heavy duty vehicles engines, as agreed by GRPE (paras. 13 and 14 above). He informed GRPE that the informal group had considered a proposal for amendments to Regulation No. 101 concerning the calculation method of the natural gas consumption. He added that the group had also discussed proposals for amendments to Regulation No. 115 with regard to the scope of the Regulation, the emission test procedure and new provisions for non-methane hydrocarbon (NMHC). In this respect, he announced the intention of his group to submit an official document, for consideration by GRPE at its June 2009 session, taking into account the alignment of Regulation No. 115 with respect to the new provisions on the Euro 5/6 emission levels.

31. GRPE noted that the next meeting of the GFV working group would take place in Brussels, on 4 and 5 March 2009. GRPE agreed that the GFV group should also meet prior to the next session of GRPE (para. 53 below).

### **C. Regulation No. 83 (Emissions of M<sub>1</sub> and N<sub>1</sub> categories of vehicles) (Agenda item 6(c))**

Documentation: ECE/TRANS/WP.29/GRPE/2009/7, ECE/TRANS/WP.29/GRPE/2009/8, Informal documents Nos. GRPE-57-02, GRPE-57-16, GRPE 56-17, GRPE-57-18, GRPE-57-23, GRPE-57-24 and GRPE-57-36

32. Recalling the discussion during the previous GRPE session, the expert from Germany introduced ECE/TRANS/WP.29/GRPE/2009/7 proposing to allow the calculation of the regenerating factor ( $K_i$ ) for multiple periodic regenerating systems. The expert from EC raised a study reservation. The expert from OICA suggested a number of corrections (GRPE-57-18). He underlined the need to align in this respect the provisions of Regulation No. 101 and announced that he would prepare a concrete proposal for consideration at the next session of GRPE.



33. GRPE agreed in principle on ECE/TRANS/WP.29/GRPE/2009/7, as amended by Annex III to this report. The secretariat was requested to submit the proposal to WP.29 and AC.1, for consideration at their June 2009 sessions, as draft Supplement 9 to the 05 series of amendments to Regulation No. 83, subject to a final review by GRPE at its June 2009 session.

34. The expert from OICA introduced ECE/TRANS/WP.29/GRPE/2009/8 and GRPE-57-16 proposing to clarify and update the specifications in the Regulation with regard to the Flame Ionisation Detector (FID) hydrocarbon analyser used during testing of the vehicle. GRPE noted a number of concerns by the experts from EC and the Netherlands.

35. Following the discussion, the expert from OICA was invited to prepare, jointly with the experts from EC and the Netherlands, a revised proposal for consideration at the next session of GRPE in June 2009, as an official document.

36. The expert from EC introduced GRPE-57-17, GRPE-57-23 and GRPE-57-24 proposing and justifying the implementation into the Regulation of the new Euro 5/6 emission requirements of EU Regulations (EC) Nos. 715/2007 and 692/2008. He announced that these new requirements would enter into force in the European Union by the end of 2009 and underlined the urgency to align in this respect the provisions of UNECE Regulations.

37. The expert from the United Kingdom questioned the need to insert already at this stage the new Euro 6 emissions requirements, which have not yet been fully defined. He suggested inserting, in a first step, only the Euro 5 requirements and, at a later stage, the provisions for Euro 6. This procedure would considerably simplify the transitional provisions. The expert from France supported that position and reminded GRPE to align in parallel the provisions of Regulation No. 101. Referring to the general guidelines for transitional provisions in UNECE Regulations (document TRANS/WP.29/1044), the expert from OICA underlined the need to insert transitional provisions with the possibility that a Contracting Party may prefer to have different dates of entry into force for the new emission requirements. He reminded the expert from EC to take into account all amendments adopted by GRPE, i.e. including the draft Supplement 9 to the 05 series of amendments to Regulation No. 83 (see para. 33 above). The expert from the Russian Federation introduced GRPE-57-02 proposing some amendments to the Regulation with regard to requirements for the type VI test.

38. The expert from EC welcomed all the comments and announced his intention to circulate an informal document (GRPE-57-36) on this issue. In this respect, he invited all experts to send him further comments, but not later than 15 February 2009 in order to enable him to submit an updated proposal to the secretariat by mid March 2009 at the latest.

39. Following the discussion, GRPE agreed to submit, on an exceptional basis, the updated proposals by the EC, as a new 06 series of amendments to Regulation No. 83 respectively as 01 series of amendments to Regulation No. 101, to WP.29 and AC.1, for consideration at their June 2009 sessions, subject to a final review by GRPE at its June 2009 session.

**D. Regulation No. 85 (Measurement of net power) (Agenda item 6(d))**

Documentation: ECE/TRANS/WP.29/GRPE/2009/3

40. Recalling the discussion at the previous session of GRPE, the expert from EC introduced ECE/TRANS/WP.29/GRPE/2009/3 proposing to align the provisions of the Regulation with those of the EU Directive 80/1269/EEC, as amended by 2009/3/EC.

41. GRPE noted some comments and adopted ECE/TRANS/WP.29/GRPE/2009/3, as amended below. The secretariat was requested to submit it to WP.29 and AC.1, for consideration at their June 2009 sessions, as draft Supplement 5 to Regulation No. 85.

Page 4, Annex 1, item 0., correct "GENERAL" to read "GENERAL IDENTIFICATION OF THE VEHICLE".

Page 5, Annex 1, items 3.3.2. to 3.5.7.2., renumber as items 3.3.1.1. to 3.3.3.7.2.

**E. Regulation No. 101 (CO<sub>2</sub> emissions/fuel consumption) (Agenda item 6(e))**

42. GRPE noted that no information was given under this item and agreed to remove it from the agenda of the next session.

**VIII. HYDROGEN AND FUEL CELL VEHICLES – SUB-GROUP ENVIRONMENT (HFCV-SGE) (Agenda item 7)**

43. The HFCV Project Manager, Mr. C. Albus (Germany), informed GRPE that no further work progress had been made by the sub-group on environmental issues (HFCV-SGE) since the last GRPE session. He added that the sub-group on safety (HFCV-SGS) had made some progress and the group would meet again in Budapest on 19-21 January 2009, in conjunction with a meeting of the GRSP informal group on Electric Safety (ELSA), scheduled to be held on 22-23 January 2009. He announced the intention of the HFCV-SGE to have a further meeting in spring 2009 and, eventually, in conjunction with the next GRPE in June 2009 (see para. 53 below).

**IX. ENVIRONMENTALLY FRIENDLY VEHICLES (EFV) (Agenda item 8)**

Documentation: Informal documents Nos. GRPE-57-26 and WP.29-146-24

44. Referring to his presentation (WP.29-146-24) given during the November 2008 session of WP.29, the expert from India confirmed the intention of his government to organize the fourth EFV conference, scheduled to be held in New Delhi (India) on 23-24 November 2009. He informed GRPE about the main topics to be discussed during that international conference and invited all GRPE experts to participate in the event. He announced his intention to provide further information on this subject at the forthcoming session of WP.29 in March 2009.

45. The Chairman of EFV reported on the progress of work (GRPE-57-26) made by his group at its second meeting, held in Bonn on 30-31 October 2008. He informed GRPE about the

updated version (EFV-02-03-Rev.2) of the feasibility statement to develop a measurement procedure and an evaluation method for EFV. He added that pertinent working paper was publicly available (<http://www.unece.org/trans/main/wp29/wp29wgs/wp29grpe/efv02.html>).

46. The EFV Chairman sought the advice of GRPE on a number of issues mentioned in GRPE-57-26. GRPE confirmed that the EFV group should continue its work on the basis of the so-called SWOT methodology (Strength, Weakness, Opportunity and Threat). GRPE recommended not to develop a new regulation on EFV, but to develop the EFV evaluation concept as an addendum to the Special Resolution No.1 (S.R.1) or to the Consolidated Resolution on the Construction of Vehicles (R.E.3). GRPE agreed with the Chairman's proposal to prepare an executive summary on the feasibility concept, for submission to WP.29 at its next session in June 2009 on the basis of an informal document. With regard to target groups and purposes of the EFV evaluation concept, GRPE preferred to have an in-depth discussion on this issue at its next session in June 2009.

47. The EFV Chairman announced that the third meeting of the EFV group would be held immediately after the GRPE session proper (see Annex II to this report). GRPE agreed that EFV should also meet in conjunction with the next GRPE session in June 2009 (para. 53 below).

## **X. FUEL QUALITY (FQ) (Agenda item 9)**

Documentation: Informal document No. GRPE-57-30

48. GRPE noted the efforts made by IPIECA and OICA during their October 2008 meeting to define the extent of fuel quality parameters. GRPE also noted the progress of work done by FQ during its third meeting held prior to the GRPE session proper (GRPE-57-30). GRPE welcomed the decision of the informal group to proceed in a two-step approach: (a) to develop first the specifications for parameters which influence emission control devices, and subsequently (b) specifications for parameters which influence the engine tailpipe emissions. The expert from IANGV clarified that this exercise should be carried out first with liquid fuels (gasoline and diesel including liquid biofuels) and second with gaseous fuels (including biogases). The informal group's working papers are available on the website of GRPE (<http://www.unece.org/trans/main/wp29/wp29wgs/wp29grpe/fq03.html>).

49. The expert from FIA raised concerns about the increasing number of fuels in the near future and the related risk of misfuelling. In this respect, GRPE agreed on the need of providing good consumer information, a clear labelling and a mechanical compatibility of the fuel tanks with the filling units (receptacle).

50. GRPE agreed that the FQ group should meet again prior to the next session of GRPE in June 2009 (para. 53 below).

## **XI. EXCHANGE OF INFORMATION ON NATIONAL AND INTERNATIONAL REQUIREMENTS ON EMISSIONS (Agenda item 10)**

Documentation: Informal documents Nos. GRPE-57-04-Rev.1, GRPE-57-08 and GRPE-57-12

51. The expert from Switzerland presented GRPE-57-04-Rev.1 on the recent introduction into the Swiss legislation of emission control provisions for construction site equipment. GRPE noted the information by the experts from Sweden regarding high evaporative emissions and its relation to blending of ethanol into petrol (GRPE-57-08) as well as a new Swedish legislation for retrofit systems intended to be fitted to light duty vehicles for the use of ethanol E85 in their propulsion (GRPE-57-12).

## **XII. OTHER BUSINESS (Agenda item 11)**

52. GRPE noted that no information was given under this agenda item.

## **XIII. PROVISIONAL AGENDA FOR THE NEXT SESSION**

53. For its fifty-eighth session to be held in Geneva, Palais des Nations, GRPE decided to start on Monday, 8 June 2009, at 10.00 a.m. until Friday, 12 June 2009, 5.30 p.m., subject to confirmation by the secretariat (see GRPE-58-01). For that purpose, the following time schedule and provisional agenda was suggested:

### **A. INFORMAL MEETINGS IN CONJUNCTION WITH THE GRPE SESSION PROPER**

1. Informal meeting of the GRPE working group on Hydrogen and Fuel Cell Vehicles – Subgroup Environment (HFCV-SGE)

To be held on Monday morning, 8 June 2009, from 10.00 a.m. till 12.30 p.m. The agenda of the meeting will be prepared by the HFCV-SGE secretariat and distributed to the members of the group prior to the meeting. This meeting will be held without interpretation.

2. Informal meeting of the GRPE working group on Worldwide harmonized Motorcycle emission Test Cycle (WMTC)

To be held on Monday afternoon, 8 June 2009, from 2.30 p.m. till 5.30 p.m. The agenda of the meeting will be prepared by the WMTC secretariat and distributed to the members of the group prior to the meeting. This meeting will be held without interpretation.

3. (a) Informal meeting of the GRPE working group on the emissions of Non-Road Mobile Machinery (NRMM)

To be held on Tuesday morning, 9 June 2009, from 9.30 a.m. till 12.30 p.m. The agenda of the meeting will be prepared by the NRMM secretariat and distributed to the members of the group prior to the meeting. This meeting will be held without interpretation.

- (b) Informal meeting of the GRPE working group on Gaseous-Fuelled Vehicles (GFV)

To be held on Tuesday morning, 9 June 2009, from 9.30 a.m. till 12.30 p.m. The agenda of the meeting will be prepared by the GFV secretariat and distributed to the members of the group prior to the meeting. This meeting will be held without interpretation.

4. (a) Informal meeting of the GRPE working group on the Worldwide Harmonized Heavy Duty Certification procedure (WHDC)

To be held on Tuesday afternoon, 9 June 2009, from 2.30 p.m. till 5.30 p.m. The agenda of the meeting will be prepared by the WHDC secretariat and distributed to the members of the group prior to the meeting.

- (b) Informal meeting of the GRPE working group on the Fuel Quality (FQ)

To be held on Tuesday afternoon, 9 June 2009, from 2.30 p.m. till 5.30 p.m. The agenda of the meeting will be prepared by the FQ secretariat and distributed to the members of the group prior to the meeting. This meeting will be held without interpretation.

5. Informal meeting of the GRPE working group on the Worldwide harmonized Light vehicles Test Procedures (WLTP)

To be held on Wednesday (whole day), 10 June 2009, from 9.30 a.m. till 5.30 p.m. The agenda of the meeting will be prepared by the WLTP secretariat and distributed to the members of the group prior to the meeting.

6. Informal meeting of the GRPE working group on Particle Measurement Programme (PMP)

To be held on Wednesday morning, 10 June 2009, from 9.30 a.m. till 12.30 p.m. The agenda of the meeting will be prepared by the PMP secretariat and distributed to the members of the group prior to the meeting. This meeting will be held without interpretation.

7. Informal meeting of the GRPE working group on Environmentally Friendly Vehicles (EFV)

To be held on Friday afternoon, 12 June 2009, from 2.30 p.m. till 5.30 p.m. The agenda of the meeting will be prepared by the EFV secretariat and distributed to the members of the group prior to the meeting. This meeting will be held without interpretation.

B. PROVISIONAL AGENDA FOR THE FIFTY-EIGHTH SESSION OF GRPE PROPER

54. To be held on Thursday, 11 June 2009, from 9.30 a.m. to Friday, 12 June 2009, until 12.30 p.m.:

I. Regulation No. 49 (Emissions of C.I. and P.I. (NG and LPG) engines):

- (a) Off-Cycle Emissions (OCE);
- (b) Gtr No. 4 on Worldwide harmonized heavy duty certification procedure (WHDC);
- (c) Amendments to heavy duty OBD systems.

II. Particle Measurement Programme (PMP).

- III. Gtr No. 2 on the Worldwide harmonized Motorcycle emission Test Cycle (WMTC).
- IV. Exhaust emissions test protocol of Non-Road Mobile Machinery (NRMM).
- V. Amendments to other UNECE Regulations:
  - (a) Worldwide harmonized Light vehicles Test Procedures (WLTP);
  - (b) Gaseous-Fuelled Vehicles (GFV);
  - (c) Regulation No. 83 (Emissions of M<sub>1</sub> and N<sub>1</sub> categories of vehicles);
  - (d) Regulation No. 85 (Measurement of net power).
- VI. Hydrogen and Fuel Cell Vehicles – Subgroup Environment (HFCV-SGE).
- VII. Environmentally Friendly Vehicles (EFV).
- VIII. Fuel Quality (FQ).
- IX. Exchange of information on national and international requirements on emissions.
- X. Election of officers.
- XI. Other business.

ANNEX I

LIST OF INFORMAL DOCUMENTS (GRPE-57-...)  
DISTRIBUTED WITHOUT AN OFFICIAL SYMBOL DURING THE SESSION

No.	Transmitted by	Agenda item	Language	Title	Follow-up
01- Rev.1	Secretariat	-	E	Informal group meetings scheduled to be held in conjunction with the 57th GRPE session proper	(a)
02	Russian Federation	6(c)	E	Proposal for draft amendments to ECE Regulation No. 83	(a)
03	IMMA	4	E	IMMA proposal for the structure of the limit values in gtr No. 2	(a)
04	Switzerland	10	E	Information on newly introduced emission control provisions for construction site equipment	(a)
05	Japan	4	E	JASIC proposal for correction for phase indicators of gearshift in gtr No. 2 (WMTC)	(a)
06	WHDC	2(b)	E	Progress report on global technical regulation No. 4 (WHDC)	(a)
07	WHDC	2(b)	E	Proposal for amendments to global technical regulation (gtr) No. 4 (WHDC)	(a)
08	Sweden	10	E	Further information about high evaporative emissions and its relation to blending of ethanol into petrol	(a)
09	EC	2(a)	E	Proposal for amendments to Regulation No. 49 with regard to the Off-Cycle Emission provisions (OCE)	(b)
10	OICA	2(a)	E	OICA comments to OCE gtr	(a)
11	EC	2(a)	E	Proposal for amendments to Regulation No. 49	(a)
12	Sweden	10	E	Information about new legislation for retrofit systems to be installed in light duty vehicles for the use of E85 in their propulsion	(a)
13	India	4	E	India's comments on the proposal for Corrigendum to gtr No. 2 vide document ECE/TRANS/WP.29/GRPE/2009/2	(a)

No.	Transmitted by	Agenda item	Language	Title	Follow-up
14	India	4	E	India's comments on the proposal vide documents GRPE-57-03 and ECE/TRANS/WP.29/GRPE/2009/4	(a)
15	GFV	2(c)	E	Proposal for draft amendments to Regulation No. 49 – Rev.4	(a)
16	OICA	6(c)	E	OICA proposal for amendments to Regulation No. 83	(a)
17	EC	6(c)	E	Proposal for draft 06 series of amendments to Regulation No. 83: Insertion into the Regulation of the Euro 5/6 requirements	(a)
18	OICA	6(c)	E	OICA proposal for amendments to Regulation No. 83 (ECE/TRANS/WP.29/GRPE/2009/7)	(b)
19	EMA	2(a)	E	EMA comments on the global technical regulation for Off-Cycle Emissions	(a)
20	IMMA	4	E	IMMA proposal for a Corrigendum to ECE/TRANS/180/Add.2 (gtr No. 2 on WMTC)	(a)
21	JRC/EC	5	E	Draft global technical regulation on compression-ignition (C.I.) engines to be installed in agricultural and forestry tractors and in non-road mobile machinery with regard to the emissions of pollutants by the engine	(a)
22	EC	2(c)	E	Proposal for amendments to Regulation No. 49 (alignment of the scope with that of Regulation No. 83 implementing Euro 5/6	(a)
23	EC	6(c)	E	Proposal for amendments to Regulation No. 83	(a)
24	EC	6(c)	E	Justification summary for the amendments to Regulation No. 83 (see informal document No. GRPE-57-17)	(a)
25	EC	2(c)	E/R	Proposal for a draft amendment to Regulation No. 49	(a)
26	EFV	8	E	Progress report on the work of the informal group "Environmentally Friendly Vehicles"	(a)



No.	Transmitted by	Agenda item	Language	Title	Follow-up
27	USA	2(a)	E	Progress report from the Chair of the OCE informal working group to the 57th GRPE session (15 January 2009)	(a)
28	Japan	4	E	Proposal for correction of document ECE/TRANS/WP.29/GRPE/2009/2	(a)
29	OICA	2(c)	E	Proposal for draft amendments to Regulation No. 49 – Rev.4	(a)
30	FQ	9	E	Summary of the 3rd meeting of the informal group on Fuel Quality (FQ)	(a)
31	WLTP	6(a)	E	Summary of the 2nd informal group meeting on WLTP	(a)
32	WHDC	2(b)	E	Worldwide harmonized Heavy Duty emissions Certification procedure (WHDC)	(a)
33	GFV	6(b)	E	Informal group on Gaseous Fuelled Vehicles (GFV)	(a)
34	GFV	2(c)	E	UNECE GFV informal group task force "OBD for gas fuelled engines"	(a)
35	JRC/EC	5	E	Non road mobile machinery engines: global technical regulation	(a)
36	EC	2(c) & 6(c)	E	Transposition of Euro 5/6 legislation to UNECE Regulations	(a)

Consideration of informal documents from other sessions of WP.29  
(referring to the agenda item of the current GRPE session)

146th session of the World Forum WP.29

24	India	8	E	4th International Environmentally Friendly Vehicle Conference	(a)
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Notes:

- (a) Consideration completed or to be superseded
- (b) Adopted and submitted to WP.29

## ANNEX II

### INFORMAL MEETINGS HELD IN CONJUNCTION WITH THE FIFTY-SEVENTH SESSION OF GRPE

1. Following the agreement reached at the previous GRPE session, seven informal meetings were held in conjunction with the fifty-seventh session of the GRPE.
2. The twenty-second informal meeting of the GRPE working group on Off-Cycle Emissions (OCE) was held on 12 January 2009 (afternoon only) under the Chairmanship of Mr. W. Charmley (United States of America). A summary of the proceedings of this informal meeting is given in the report above (paras. 4-7).
3. The twentieth informal meeting of the GRPE working group on the emissions from Non-Road Mobile Machinery (NRMM) was held on 13 January 2009 (morning only) under the Chairmanship of Mr. R. Hummel (EC/JRC). A summary of the proceedings of this informal meeting is given in the report above (paras. 25-26).
4. The fourth informal meeting of the GRPE working group on Gaseous-Fuelled Vehicles (GFV) was held on 13 January 2009 (morning only) under the Chairmanship of Mr. A. Rijnders (Netherlands). A summary of the proceedings of this informal meeting is given in the report above (paras. 13-14 and 30-31).
5. The twenty-sixth informal meeting of the GRPE working group on the Worldwide Harmonized Heavy Duty Certification (WHDC) procedure was held on 13 January 2009 (afternoon only) under the Chairmanship of Mr. J.P. Laguna (EC). A summary of the proceedings of this informal meeting is given in the report above (paras. 8-11).
6. The third informal meeting of the GRPE working group on Fuel Quality (FQ) was held on 13 January 2009 (afternoon only) under the Chairmanship of Mr. B. Gauvin (France). A summary of the proceedings of this informal meeting is given in the report above (paras. 48-50).
7. The second informal meeting of the GRPE working group on Worldwide harmonized Light vehicles Test Procedures (WLTP) was held on 14 January 2009 (whole day) under the Chairmanship of Mr. B. Gauvin (France). A summary of the proceedings of this informal meeting is given in the report above (paras. 27-29).
8. The third informal meeting of the GRPE working group on Environmentally Friendly Vehicles (EFV) was held on 16 January 2009 (morning only) under the Chairmanship of Mr. C. Albus (Germany). An outlook of the proceedings of this informal meeting is given in the report above (paras. 44-47).

Annex IIIADOPTED AMENDMENTS TO ECE/TRANS/WP.29/GRPE/2009/7  
(Regulation No. 83, see paragraph 33 of this report)

Page 3, paragraph 3.1., correct to read:

"3.1. Exhaust emission measurement between two cycles where regenerative phases occur

3.1.1. Average emissions between ..... shall be carried out according to Annex 4, paragraphs 5., 6., 7. and 8. **Determination of average emissions for a single regenerative system shall be according to paragraph 3.3. of this annex and for multiple regeneration systems according to paragraph 3.4. of this annex.**"

Page 5, paragraph 3.3., correct "For exemplary illustration" to read "For **an** illustration".

Page 6, paragraph 3.4., correct to read (switching the indices "j" and "k"):

"3.4. Calculation of combined exhaust emissions of multiple periodic regenerating systems

$$(1) \quad M_{sik} = \frac{\sum_{j=1}^{n_k} M'_{sik,j}}{n_k} \quad n_k \geq 2$$

$$(2) \quad M_{rik} = \frac{\sum_{j=1}^{d_k} M'_{rik,j}}{d_j}$$

$$(3) \quad M_{si} = \frac{\sum_{k=1}^x M_{sik} \cdot D_k}{\sum_{k=1}^x D_k}$$

$$(4) \quad M_{ri} = \frac{\sum_{k=1}^x M_{rik} \cdot d_k}{\sum_{k=1}^x d_k}$$

$$(5) \quad M_{pi} = \frac{M_{si} \cdot \sum_{k=1}^x D_k + M_{ri} \cdot \sum_{k=1}^x d_k}{\sum_{k=1}^x (D_k + d_k)}$$

$$(6) \quad M_{pi} = \frac{\sum_{k=1}^x (M_{sik} \cdot D_k + M_{rik} \cdot d_k)}{\sum_{k=1}^x (D_k + d_k)}$$

$$(7) \quad K_i = \frac{M_{pi}}{M_{si}}$$

where:

$M_{si}$  = mean mass emission of all events  $k$  of pollutant (i) in g/km without regeneration

$M_{ri}$  = mean mass emission of all events  $k$  of pollutant (i) in g/km during regeneration

$M_{pi}$  = mean mass emission of all events  $k$  of pollutant (i) in g/km

$M_{sik}$  = mean mass emission of event  $k$  of pollutant (i) in g/km without regeneration

$M_{rik}$  = mean mass emission of event  $k$  of pollutant (i) in g/km during regeneration

$M'_{sik,j}$  = mass emissions of event  $k$  of pollutant (i) in g/km over one Type I operating cycle (or equivalent engine test bench cycle) without regeneration **measured at point j;  $1 \leq j \leq n_k$**

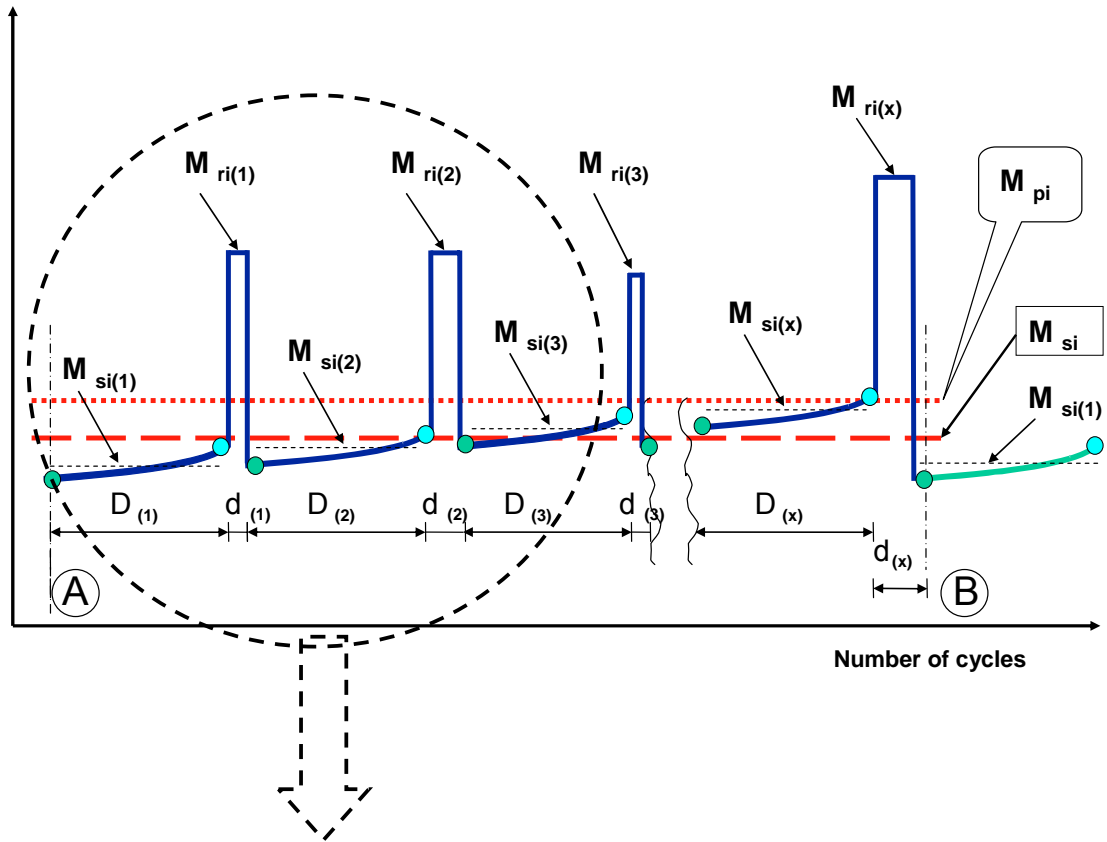
$M'_{rik,j}$  = mass emissions of event  $k$  of pollutant (i) in g/km over one Type I operating cycle (or equivalent engine test bench cycle) during regeneration (when  $j > 1$ , the first Type I test is run cold, and subsequent cycles are hot) **measured at operating cycle j;  $1 \leq j \leq n_k$**

$n_k$  = number of test points of event  $k$  at which emissions measurements (Type I operating cycles or equivalent engine test bench cycles) are made between two cycles where regenerative phases occur,  $\geq 2$

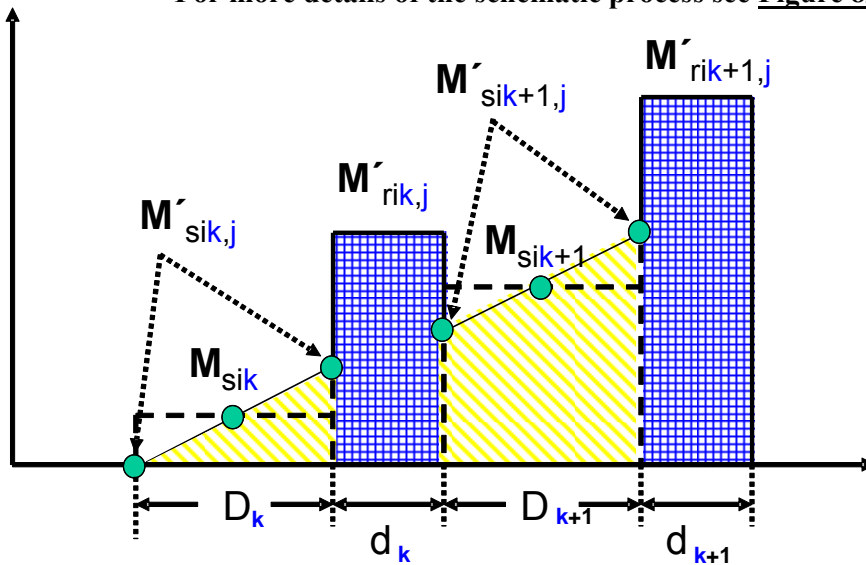
$d_k$  = number of operating cycles of event  $k$  required for regeneration

$D_k$  = number of operating cycles of event  $k$  between two cycles where regenerative phases occur

For an illustration of measurement parameters see [Figure 8/2](#) (below)



For more details of the schematic process see [Figure 8/3](#)



**Figure 8/3:** Parameters measured during emissions test during and between cycles where regeneration occurs (schematic example)

For application of a simple and realistic case, **the following description gives a detailed explanation of the schematic example shown in Figure 8/3 above:**

1. DPF: regenerative, equidistant events, similar emissions ( $\pm 15$  per cent) from event to event

$$D_k = D_{k+1} = D_1$$

$$d_k = d_{k+1} = d_1$$

$$M_{rik} - M_{sik} = M_{rik+1} - M_{sik+1}$$

$$n_k = n$$

2. DeNO<sub>x</sub>: the desulphurisation (SO<sub>2</sub> removal) event is initiated before an influence of sulphur on emissions is detectable ( $\pm 15$  per cent of measured emissions) **and in this example for exothermic reason together with the last DPF regeneration event performed.**

$$M'_{sik,j=1} = \text{constant} \rightarrow \begin{aligned} M_{sik} &= M_{sik+1} = M_{si2} \\ M_{rik} &= M_{rik+1} = M_{ri2} \end{aligned}$$

For SO<sub>2</sub> removal event:

$$M_{ri2}, M_{si2}, d_2, D_2, n_2 = 1$$

3. **Complete system (DPF + DeNO<sub>x</sub>):**

$$M_{si} = \frac{n \cdot M_{si1} \cdot D_1 + M_{si2} \cdot D_2}{n \cdot D_1 + D_2}$$

$$M_{ri} = \frac{n \cdot M_{ri1} \cdot d_1 + M_{ri2} \cdot d_2}{n \cdot d_1 + d_2}$$

$$M_{pi} = \frac{M_{si} + M_{ri}}{n \cdot (D_1 + d_1) + D_2 + d_2} = \frac{n \cdot (M_{si1} \cdot D_1 + M_{ri1} \cdot d_1) + M_{si2} \cdot D_2 + M_{ri2} \cdot d_2}{n \cdot (D_1 + d_1) + D_2 + d_2}$$

The calculation of the factor (K<sub>i</sub>) for multiple periodic regenerating systems is only possible after a certain number of regeneration phases for each system. After performing the complete procedure (A to B, see Figure 8/2), the original starting conditions A should be reached again."

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