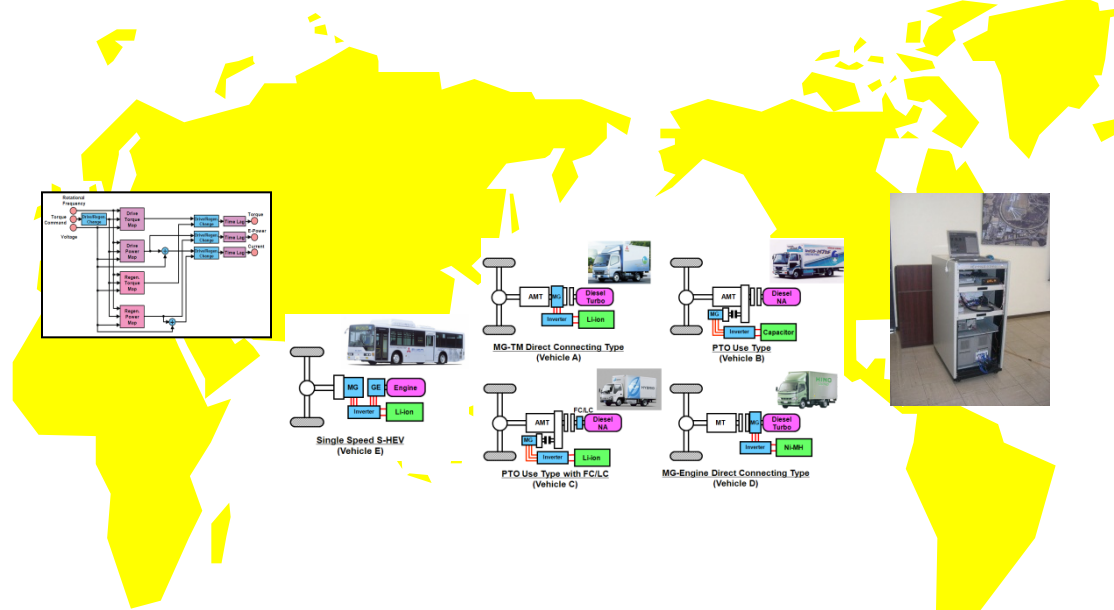




UNITED NATIONS

Working Paper No. HDH-16-05e
(16th HDH meeting, 07 January 2014)



GRPE Informal Working Group on Heavy Duty Hybrids

16th HDH, Geneva, 07 January 2014



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Summary of 15th HDH Meeting

- **The results of the 15th meeting in San Francisco on 24 and 25 October 2013 are summarized, as follows:**
- **The results of validation test program 1 with the new model structure were presented by the institutes; the new model structure includes a comprehensive component model library, a new signal naming convention and restructured vehicle models**
 - **The next model release will be on 31/10/2013**
 - **The final decision on chassis dyno testing will be taken at the 16th HDH meeting**
 - **Validation test program 2 at JRC has started in May; so far, the validation criteria of the Japanese regulation could not be met; further work is needed.**
 - **Institutes and JASIC will jointly develop a proposal for fixed slopes**
 - **A specific procedure for plug-in hybrids will not be included**
 - **The OICA proposal on vehicle parameters was agreed**
 - **Weighting factors will not be included**
 - **Discussion on master ECU will continue**
 - **Discussion on work (engine or system) for the emissions calculation will continue at the 16th meeting**
 - **The technical secretary of HDH drafting group has been nominated**
 - **The drafting group will work hard to have the informal document ready for the 68th GRPE**



Topics for 16th HDH Meeting

- **Validation test program 2: Status and further steps (HDH-16-04 and HDH-16-06)**
- **Timing of HDH work program**
- **Other topics**
 - **WHVC road gradients (final proposal by the institutes and Japan)**
 - **Basis for brake specific emissions calculation (system work vs. engine work)**
 - **Definition of master ECU**
 - **Hybrid system family (brainstorming)**
- **Approval of drafting process**
- **Discussion of US EPA memo (HDH-16-03)**



Status of Validation Test Program 2

➤ JRC test program

- Validation test program 2 with real HVs started at JRC with in May 2013
- Test with two vehicles (Volvo & MAN) completed
- Iveco vehicle will be tested at JRC in February 2014 with torque measurement device installed on vehicle
- Additional dyno testing of MAN vehicle at MAN in January 2014
- So far, problems encountered to meet Japanese verification criteria
- Data evaluation and problem solution still ongoing
- Validation expected to be completed by the end of March 2014

➤ Additional input from institutes

- Final proposal for road gradients in cooperation with JASIC
- HILS verification method (alternative to chassis dyno) will be investigated



Drafting Group

➤ Status

- **Two meetings in March and May 2013 w/o technical secretary**
- **Technical secretary was installed in September 2013**
- **The 3rd meeting was held on 22 and 23 October 2013 in San Francisco**
- **The 4th to 6th meetings were held in November/December 2013 as web meetings**
- **The 7th meeting was held on 18 December 2013 in Brussels**
- **Approach for gtr amendment:**
 - **New annexes 8 (HILS) & 9 (powertrain test)**
 - **Addition of WHVC with road gradients to annex 1**
 - **Amendments to base regulation, such as „hybrid family“, „definitions“, „general test procedure“, „stop/start approach“, etc.**
- **2 further web meetings in January/February 2014**
- **Next face-to-face meeting on 18/19 February 2014 in Tokyo**



HDH Timeline & Open Issues

- **The following timeline was agreed at the 15th HDH meeting:**
 - **Informal document for GRPE 68 (document GRPE-68-12) with text finalized by December & open issues list to be submitted by 20/12/13**
 - **Formal document for GRPE 69 on the basis of GRPE-68-12 & some items of the open issues list to be submitted by 01/03/14**
 - **Informal document for GRPE 69 with the remainder of the open issues list, and complementing the formal document to be submitted by 15/05/14**
 - **Adoption of both documents by GRPE 69**

- **Open issues:**
 - **WHVC road gradients**
 - **HILS verification criteria**
 - **HILS testing**
 - **Family concept**
 - **Approval system for OEM models**
 - **Evaluation of validation test program 2**
 - **Hardware control functions (master ECU)**



Next Meetings

- **The next HDH meetings are scheduled as follows:**
 - **The 17th meeting will be on 08 and 09 April 2014 in Madrid**
 - **The 18th meeting will be on 03 June 2014 in Geneva (to be confirmed)**

- **The next drafting group meetings are scheduled as follows:**
 - **The 8th meeting will be on 27 January 2014 (web meeting)**
 - **The 9th meeting will be on 10 February 2014 (web meeting)**
 - **The 10th meeting will be on 18 and 19 February 2014 in Tokyo**
 - **Further web meeting(s) in March 2014**
 - **The final meeting will be on 10 and 11 April 2014 in Madrid**
 - **Further web meeting(s) in April/May 2014, if needed**