



Working Paper No. HDH-14-04e
(14th HDH meeting, 04 June 2013)

GRPE-HDH

14th meeting of the GRPE informal group on heavy duty hybrids (HDH)

Report on validation test program 2

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Content

- Summary of validation test program 2
- Time Schedule
- Preliminary Results



Summary of validation test program 2

- ❑ 24/04/2013 Meeting between the JRC and the OEMs participating in the VTP2

- ❑ Participants:
 - VOLVO GTT: Hygrell M., Brunet S.
 - IVECO (FTP): Hensel M.
 - MAN AG: Richter K., Lechner M.
 - JRC: Perujo A.

- ❑ Scope:
 - To define the test procedure to be followed during the Validation Test Program 2 (VTP2)



Procedure

Input parameters:

1. Rolling resistance coefficient and air resistance coefficient: following the formulas given in Kokujikan No. 281 (paragraph 10-5)
2. Select the total weight according to the Kokujikan 10-5



Procedure

Conditions:

- VTP2 tests shall be carried out with as many auxiliaries as possible shut down and for those required for the proper operation of the vehicle to measure/estimate their power consumption.
- Each test day shall finished with a “stop & go” cycle for 30min (the first 1200 s of the WHVC are considered as appropriate). This has the objective to leave the vehicle in standard conditions to start the operations (VTP2) the following day having stabilized energy storage conditions.



Procedure

Test sequence:

1. RES SOC evaluation
2. Warm-up cycle: WHVC cycle (before each test) (with 3% slope)
3. Run a real standard WHVC on the chassis dyno to determine cycle work. Repeat this run 2 times (preferably 3 times)
4. Feed the torque/speed trace into the program provided by the universities to create the WHVC with 'slopes'.



Procedure

Test sequence (cont):

5. Feed the new cycle to the chassis dyno and run the test with WHVC+slope. Repeat this run 2 times (preferably 3 times).
6. Same as in point (5) but for a program to create a WHVC adjusted with slopes using 30sec moving average (HDH-13-06, pg8).
7. Repeat point (6) with WHVC + slope (30 sec moving average). Repeat this run 2 times (preferably 3 times).



Time Schedule

	May-13				Jun-13				Jul-13				Aug-13		Sep-13	
Week No.	19	20	21	22	23	24	25	26	27	28	29	30	31	36	37	
VOLVO	█	█			⋮											
FPT					█	█	█									
MAN								█	█							
Data Processing			█	█	█					█	█	█	█	█	█	
Report					⋮										▲	



Preliminary Results (VOLVO Bus)

Recorded cycles:

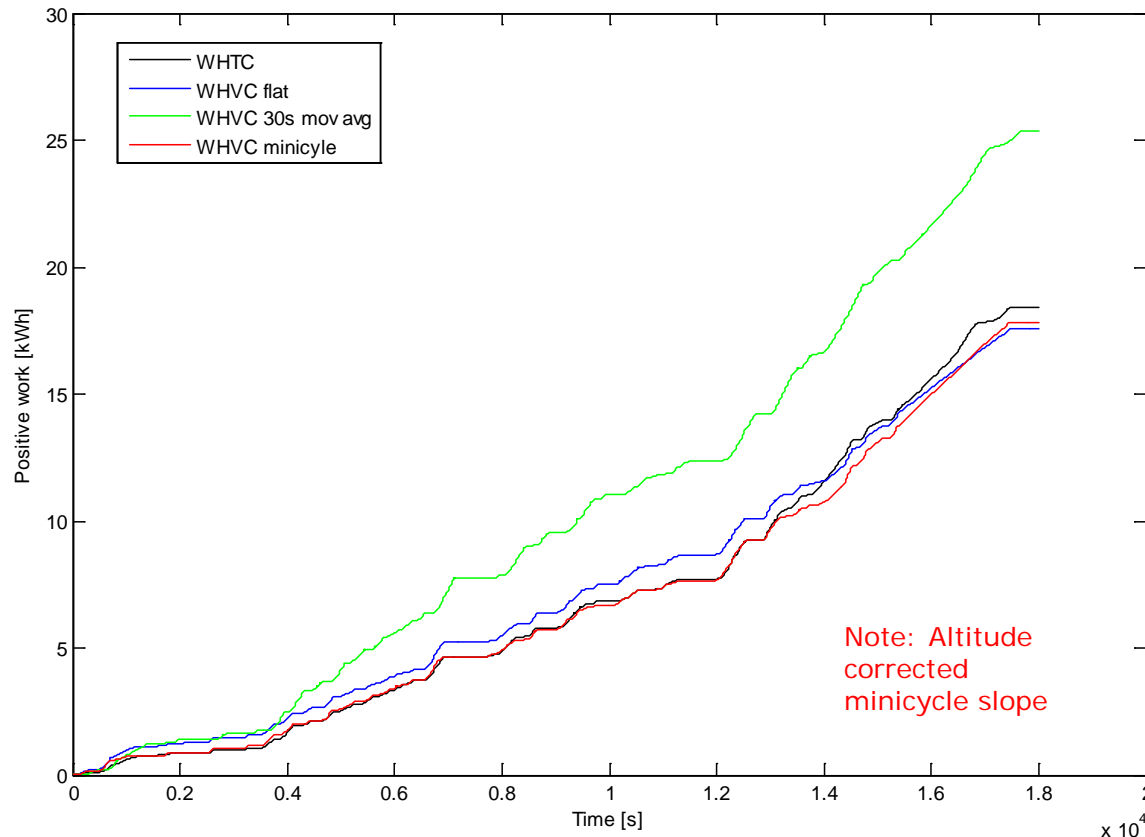
- Flat WHVC
- Mini-cycle WHVC (with and without altitude compensation)
- 30s moving average WHVC



4 June 2013

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Positive work



Mini-cycle works perfectly on the first 11 cycle. Can't follow during the last cycle. 30s moving average slope fails.

It was hard to follow by the driver and chassis dyno and gives wrong work.



THANK YOU VERY MUCH FOR YOUR ATTENTION