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(45<sup>th</sup> GRPE, 13-17 January 2003  
agenda item 1.4.)



*WWH-OBD*

**45th session of GRPE  
Geneva 15 January 2003  
Status report**



## Meetings

- 2<sup>nd</sup> WWH-OBD meeting  
Paris November 2002  
2 days meeting
- 3<sup>rd</sup> WWH-OBD meeting  
Geneva January 2003  
1 day meeting
- 4<sup>th</sup> WWH-OBD meeting  
Windsor (Canada) April 2003  
2 days meeting



## *Summary*

### ⊕ Definitions / Scope

- ⊠ Heavy investment of the group to facilitate further developments
- ⊠ Definitions will remain specific to the OBD-GTR

### ⊕ Major points currently under work

- ⊠ Failure classification and associated alerts
- ⊠ Communication issues
- ⊠ Thresholds

### ⊕ Timing

- ⊠ Editorial committee to start its work in January
- ⊠ No delay expectation at the present time



## Definitions

### *Already agreed definitions*

#### ▣ General definitions

- OBD
- Engine system
- Malfunction

#### ▣ OBD specific definitions

- Malfunction indicator
- OBD test cycle
- Operating sequence
- Deteriorated Component
- Standardised information
- Unrestricted information



## Proposed definition of OBD

- 'On Board Diagnostic system (OBD)' means a system on-board a vehicle or engine which has the capability
  - of detecting malfunctions or failures,
  - of indicating their occurrence by means of a malfunction indicator, and
  - of identifying the likely area of malfunction by means of fault codes stored in computer memory;

### *Note:*

*For the present stage of the GTR, OBD definition is restricted to emission related malfunctions /failures of the engine system*



## Failure classification

### *2 types of classification*

- Classification per importance to the legislator
  - From failures not affecting the environment to failures needing an urgent action
  - Codification of the recorded failure appropriately
  
- Technical classification
  - Electrical failures
  - Failures monitored to emissions
  - Failures monitored to other functional criteria



## Hierarchy of alerts

- The group is currently looking to determine
  - The failures that justify an alert of the driver under driving conditions
  - The failures that will provide an alert when Key ON / engine OFF
  - The failures accessible through a remote procedure (access to the OBD memory)
- The constraints taken under consideration
  - Coherence with the failure classification
  - The need of non-ambiguous information for controls by the authorities



## Alert to the driver

- Environmental considerations the group will have to consider
  - Is it better to activate the MI
    - On a presumptive fault (manufacturer defined), or
    - Wait until a definitive emission related fault activates the MI





## Communication protocols

### *Agreed principle*

- 2 sets of protocol communication possibly available today
  - The current standard used for LDVs
  - The current standard used World-Wide for general communication purposes in the HDV world
- WWH-OBD: One single communication protocol
  - Able to address all future needs (2010 and later)
  - Need for a new standard
  - Requisites and detailed content available by June 2004
  - Final standard available early 2006
  - Concern: those vehicles at the LDV border (other standard)



## Communication protocols

### *Agreed timeline*

#### ● Timeline (short term):

- First draft requisites available to ISO/SAE late January
- First meeting of the ad-hoc ISO/SAE mid-february to provide answers/comments
- Second meeting of the ad-hoc ISO/SAE mid-march to finalise a 1<sup>st</sup> draft answer
- Validation by the 4<sup>th</sup> WWH-OBD of the achieved work and commitment for future work.



## Thresholds

### *Agreed principle*

- To address the political requests
  - Additive or multiplicative WW-set of factors will be defined by the group that could be added to the regional set of emission limits to get regional WW-OBD threshold
  
- To address technical constraints
  - A WW-lower bound will be defined by the group that will maintain the above calculated regional WW-OBD threshold technically feasible.



## Thresholds

### *WW-set of factors*

- The factor will be set by considering consequences of malfunctions on Air-Quality
  
- Possible options for further decisions
  - Option 1: WWH-OBD is aiming at catching individual outliers  
WWH-OBD is essentially designed to improve maintenance and repair where the factor has to relate to acceptable roadworthiness levels
  - Option 2: WWH-OBD is aiming at catching non-complying productions  
WWH-OBD is essentially designed as an in-use conformity tool such that the factor is close to the certification levels