



OBD for bi-fuelled gas vehicles

History of (E)OBD for gas fuelled cars & light comm. vehicles

- EOBD for gas vehicles introduced in EC Legislation as from 2001
- Time constraints made EOBD requirements based on single technical solution, other technical possibilities as “allowed deficiencies”.
- The EU Directives were adopted as amendments to ECE Regulation No. 83.



OBID for bi-fuelled gas vehicles

Basic principles of current requirements

Three basic principles:

- 1. **Different and individual** OBID systems for data evaluation and transmission
- 2. **Different source addresses** on scan tool request
- 3. MI (activated or de-activated) controlled according to the OBID data of the fuel type currently in use.

Exception from the principles:

- For inspection/maintenance purposes, **readiness (status code)**



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Efforts to fulfil the bi-fuel (E)OBD requirements

- Because of the requirements
 - **Two separate OBD systems**
 - **Two different source addresses**additional efforts compared to a mono-fuel system are necessary:
 - OBD related hardware to be nearly doubled;
 - The existing OBD software to be changed everywhere, additional development costs and implementation risks.

- Special functions for **readiness** setting required.



OBD for bi-fuelled gas vehicles

Experiences with OBD development

- After two years of developing OBD systems
 - the industry associations CLEPA, ENGVA and AEGPL, and
 - the vehicle manufacturers who are members of ACEAconcluded that additional hardware and software is required without benefit for environment, vehicle owner and repair industry

- The current regulation for bi-fuel gas vehicles, although very clear and stringent, puts them at a disadvantage compared to mono-fuel gas vehicles.



OBD for bi-fuelled gas vehicles

Proposal for an amendment of bi-fuel OBD

- The amendment is based on the idea of allowing more technical possibilities instead of the single technical solution prescribed in the current legislation. “allowed deficiencies” are no longer needed.



OBD for bi-fuelled gas vehicles

Main items of amendment proposal 1

- In general for each of the fuel types the OBD requirements as for a mono-fuelled vehicle are applicable.
- Two major technical solutions for fault code storage and erasure and MI activation and deactivation:
 - one OBD system for both fuel types
 - two separate OBD systems, one for each fuel type
- Either one of these possibilities or any combination thereof can be used for the development of a bi-fuel OBD system.



OBD for bi-fuelled gas vehicles

Main items of amendment proposal 2

- Specific requirements regarding
 - the transmission of diagnostic signals from bi-fuelled gas vehicles on one or more source addresses

 - the identification of fuel specific information using
 - source addresses and/or
 - fuel select switch and/or
 - fuel specific diagnostic trouble codes



OBD for bi-fuelled gas vehicles

Main items of amendment proposal 3

- Two options regarding the status code (readiness):
 - two separate status codes, i.e. one for each fuel type
 - the current requirement, where the status code indicates ready for both fuel systems when the control system is fully evaluated for one fuel type.



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Proposal for an amendment of bi-fuel OBD

- The Associations propose an amendment that:
 - fulfils all the primary goals of OBD,
 - but removes unnecessary restrictions,
 - and leads to similar costs as for mono-fuel gas vehicles, therefore reducing the barrier for the introduction of bi-fuel vehicles (OEM) into the market.