

Proposal for a new global technical regulation on the measurement procedure for two- or three-wheeled motor vehicles with regard to on-board diagnostics



IWG - EPPR

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Technical rationale and justification

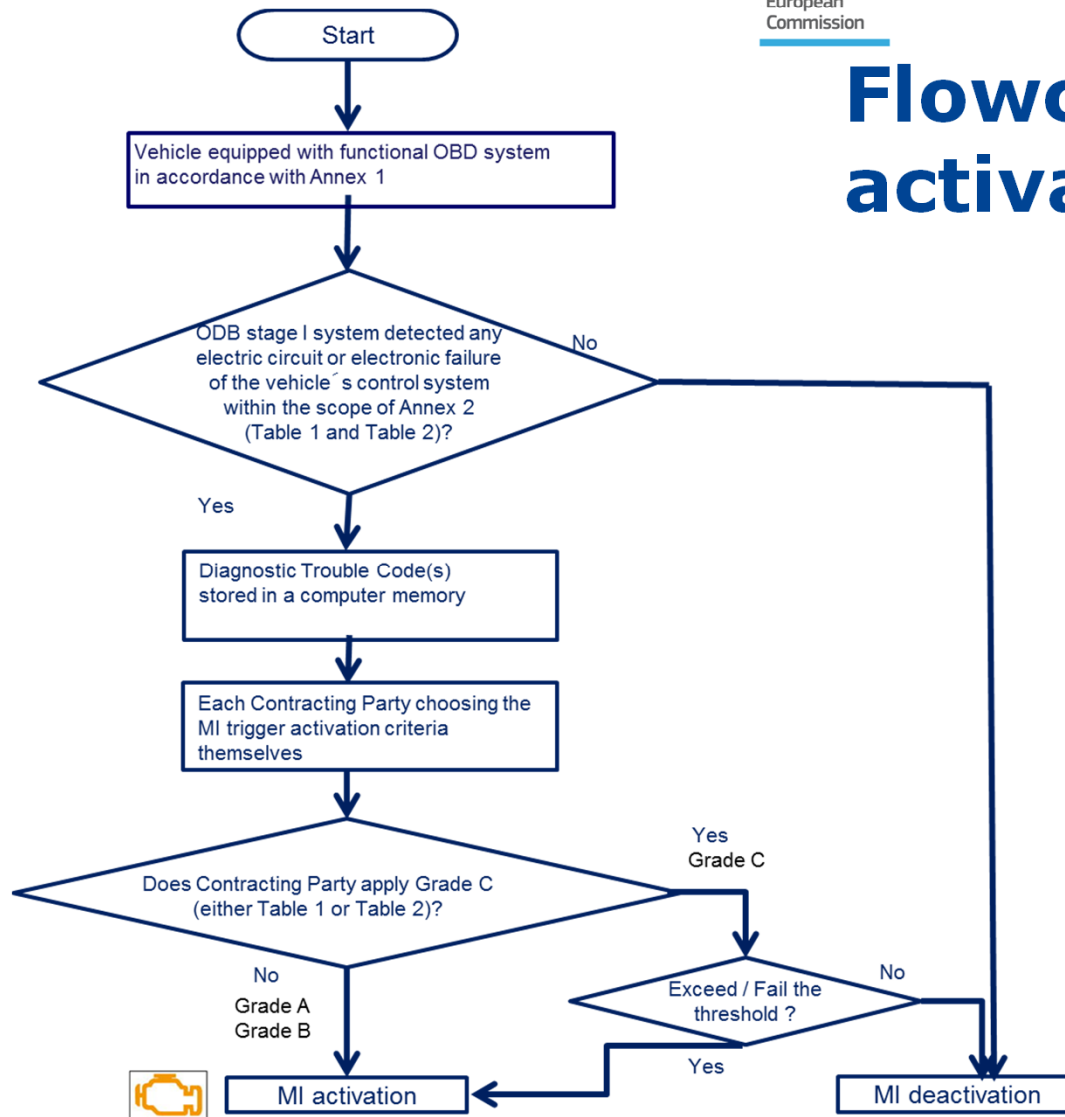
- The Contracting Parties to the 1998 Agreement have determined that work should be undertaken to address the environmental and propulsion unit performance requirements of two- and three-wheeled light motor vehicles, among others as a way to help improve air quality internationally.
- Currently, the UN gtr is directed at harmonizing On-Board Diagnostic requirements (OBD) for two- and three-wheeled vehicles, similar as targeted with UN gtr No. 5 for heavy duty vehicles.
- OBD allows the Contracting Parties to realize their own domestic objectives and to pursue their own levels of priorities

- Reference to international technical standards already established for other vehicle types;
- provide an internationally harmonized set of tests to ensure efficient and practicable testing;
- Definition of propulsion unit families with regards to OBD.
- The gtr also covers harmonized requirements to conduct the environmental verification test procedure (test type VIII) relating to OBD
- OBD stage I should not oblige manufacturers to change or add fuelling or ignition hardware and should not impose fitting of an electronic carburettor, electronic fuel injection or electronically controlled ignition coils, providing the vehicle complies with the applicable environmental performance requirements.

Issues addressed:

- Horizontal issues identified also for other UN gtrs in the area of EPPR:
 - (a) Scope;
 - (b) Reference fuel;
 - (c) Temperature unit ° C versus K.
- Specific issues:
 - (a) OBD stage I grades A, B and C diagnostic options set out in Table 1 of Annex 2;
 - (b) Malfunction Indicator (MI) trigger activation criteria;
- Review clause to update the list for technical progress in due course;

Flowchart MI trigger activation criteria





Applicability

The EPPR IWG, as agreed upon in the terms of reference, has prepared a UN gtr for vehicles in the scope of this UN gtr under the 1998 Agreement as well as two- or three wheeled vehicles under the 1958 Agreement. In accordance with the agreed terms of reference of UN gtrs and Regulations in the area of EPPR will be developed as much as possible in a coherent way.

Scope

- Objectives of the IWG was to discuss the substantive requirements of two-wheeled vehicles first followed by a discussion if these requirements should as well be applied to three-wheeled vehicles.
- The EPPR IWG discussed possible solutions how three-wheeled vehicles could be included in the scope of the UN gtr given the fact that S.R.1 contains recommended classification criteria for category 3 vehicles that might require an update for technical progress.

- With regard to a three-wheeled vehicle of category 3-4 or 3-5, Contracting Parties agree that at a minimum the following criteria should be taken into account for vehicle classification:
 - a) In their straight-ahead condition, motor vehicles having two wheels which are placed on the same straight line and equipped with one sidecar; or,
 - b) Motor vehicles having a saddle-type seat, a handle-bar type steering system and three wheels, on which the side of the driver's seat is of open structure.
- Contracting Parties may expand the scope to other types of three-wheeled vehicles in order to align with their domestic classifications of three-wheeled vehicles as deemed appropriate.

Requirements

Functional requirements for OBD

- a) Minimum monitoring requirements for OBD stage I;
- b) Provisions regarding design of the Malfunction Indicator (MI), diagnostic trouble codes, diagnostic signals and connection interfaces;
- c) Provisions regarding access to OBD information;
- d) Definition of propulsion unit families with regard to OBD.

Environmental test procedure for OBD

- a) Test vehicle requirements;
- b) Test procedure by simulating failure of exhaust emission relevant components in the powertrain management system and emission control system and monitoring the OBD system reaction during a type I test cycle;
- c) Failure modes to be tested for OBD stage I.



Performance requirements

- The performance requirements are not harmonized yet and are applicable as specified by the Contracting Parties (common flow chart)
- Nevertheless the IWG was able to come up with the largest possible common denominator in the harmonized OBD requirements, which however support the domestic objectives from the Contracting Parties.



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