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Economic Commission for Europe**Inland Transport Committee****World Forum for Harmonization of Vehicle Regulations****Working Party on Pollution and Energy****Seventy-second session**

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Item 4(a) of the provisional agenda

Heavy duty vehicles - Regulations Nos. 49**(Emissions of compression ignition and positive
ignition (LPG and CNG) engines) and 132****(Retrofit Emissions Control devices (REC))****Proposal for a new Supplement to the 06 series of
amendments to Regulation No. 49 (Compression ignition and
positive ignition (LPG and CNG) engines)****Submitted by the expert from the International Organization of Motor
Vehicle Manufacturers***

The text reproduced below was prepared by the expert from the International Organization of Motor Vehicle Manufacturers (OICA) to adapt the requirements related to fuel injection malfunction monitoring (On-Board Diagnostic systems) to the current state of technology. It is based on informal document GRPE-71-06 (see report ECE/TRANS/WP.29/GRPE/71, paras. 25-26). The modifications to the current text of Regulation No. 49 are marked in bold for new or strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2014–2018 (ECE/TRANS/240, para. 105 and ECE/TRANS/2014/26, programme activity 02.4), the World Forum will develop, harmonize and update Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.



I. Proposal

Annex 9A, paragraphs 2.3.1., amend to read:

"2.3.1. Malfunctioning injectors

As an alternative to the monitor specified in line (d) of the table in item 7 of Appendix 3 to Annex 9B to this Regulation, the manufacturer may opt for compliance with the provisions specified in paragraphs 2.3.1.1. to 2.3.1.2.1. of this Annex."

Annex 9B, Appendix 3, Item 7, amend to read:

"Fuel System monitoring

The OBD system shall monitor the following elements of the fuel system on engines so-equipped for proper operation:

	<i>Diesel</i>	<i>Gas</i>
(a) Fuel system pressure control: fuel system ability to achieve the commanded fuel pressure in closed loop control - performance monitoring.	X	
(b) Fuel system pressure control: fuel system ability to achieve the commanded fuel pressure in closed loop control in the case where the system is so constructed that the pressure can be controlled independently of other parameters - performance monitoring.	X	
(c) Fuel injection timing: fuel system ability to achieve the commanded fuel timing for at least one of the injection events when the engine is equipped with the appropriate sensors - performance monitoring.	X	
(d) Fuel injection quantity: fuel system ability to achieve the commanded fuel quantity by detecting errors from desired fuel quantity in at least one of the injection events (e.g. in pre- main- or post-injection) – emission threshold monitoring.	X	
(e) Fuel injection system: ability to maintain the desired air-fuel ratio (incl. but not limited to self-adaptation features) – performance monitoring.		X

II. Justification

1. Monitoring of clogged injection systems has been introduced into legislation in order to prevent a high level of Particulate Matter emissions when a partial failure of the Diesel Particulate Filter occurs simultaneously.

2. Currently, no specific monitoring technique is specified, but it is required that, at stage C, each manufacturer presents to its Type Approval Authority a monitoring technique to detect the eventual clogging of injectors.

3. As a clogged injection system will always affect the quantity delivered of fuel, it is proposed to transpose the provisions on the "ability of the system to achieve the commanded fuel quantity" that are specified in Global Technical Regulation No. 5 into Regulation No. 49.

4. The current requirements would remain unchanged, and be considered as an alternative choice for the manufacturer to the "default" fuel delivery monitoring technique. This permits manufacturers that have already agreed with their Type Approval Authority on another monitoring technique to not be penalised by a "last minute change".
