

## **Proposal for amendments to the 07 series of Amendments to UN Regulation No. 83 (Emissions of M1 and N1 vehicles)**

### **I. Proposal**

*Annex 11, paragraph 7.3.2., amend to read:*

"7.3.2. In addition to the requirements of paragraph 7.3.1. of this appendix:

- (a) Secondary air system monitor denominator(s) shall be incremented if the commanded "on" operation of the secondary air system occurs for a time greater than or equal to 10 seconds. For purposes of determining this commanded "on" time, the OBD system may not include time during intrusive operation of the secondary air system solely for the purposes of monitoring.
- (b) Denominators of monitors of systems only active during cold start shall be incremented if the component or strategy is commanded "on" for a time greater than or equal to 10 seconds.
- (c) The denominator(s) for monitors of Variable Valve Timing (VVT) and/or control systems shall be incremented if the component is commanded to function (e.g., commanded "on", "open", "closed", "locked", etc.) on two or more occasions during the driving cycle or for a time greater than or equal to 10 seconds, whichever occurs first.
- (d) For the following monitors, the denominator(s) shall be incremented by one if, in addition to meeting the requirements of this paragraph on at least one driving cycle, at least 800 cumulative kilometres of vehicle operation have been experienced since the last time the denominator was incremented:
  - (i) Diesel oxidation catalyst;
  - (ii) Diesel particulate filter.
- (e) Without prejudice to requirements for the increment of denominators of other monitors the denominators of monitors of the following components shall be incremented if and only if the driving cycle started with a cold start:
  - (i) Liquid (oil, engine coolant, fuel, SCR reagent) temperature sensors;
  - (ii) Clean air (ambient air, intake air, charge air, inlet manifold) temperature sensors;
  - (iii) Exhaust (EGR recirculation/cooling, exhaust gas turbo-charging, catalyst) temperature sensors;

- (f) The denominators of monitors of the boost pressure control system shall be incremented if all of the following conditions are met:
  - (i) The general denominator conditions are fulfilled;
  - (ii) The boost pressure control system is active for a time greater than or equal to 15 seconds.
  
- (g) **Manufacturers may request to use special denominator conditions for certain components or systems if it can be demonstrated to the Type Approval Authority that other conditions are necessary in order to enable the monitor."**

## II. Justification

1. The current definitions of the specific denominators are based on engine/aftertreatment system combinations which are designed as one TWC for gasoline vehicles and DOC, DPF and SCR respectively NSC for Diesel engines.
  
  2. Upcoming emission requirements will bring up additional aftertreatment components like Gasoline Particulate Filters (GPF) or new designs with more than one SCR catalyst. Such new systems or catalyst combinations might require specific conditions to enable the monitoring, especially when their purpose is designed for such conditions.
  
  3. In case of a SCR system with two catalyst bricks, where one is mounted close to the engine and the other one further downstream, the NO<sub>x</sub> aftertreatment would be dependent on temperature conditions. The downstream SCR would be used for NO<sub>x</sub> aftertreatment mainly during high load and the resulting temperature conditions, e.g. during a regeneration. Based on that the NO<sub>x</sub> conversion capability could only be monitored during comparable conditions.
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