

### CITA POSITION PAPER (December 2013)

#### The advantages of combining tailpipe emission tests with OBD checks during mandatory periodical technical inspections of in-use vehicles

Tailpipe tests are crucial and effective for evaluating the environmental emission performance of in use vehicles, a method which directly measures the exhaust emission gases.

On-going discussions at the European Council, European Parliament and European Commission for the proposed roadworthiness package (periodic technical inspections of vehicles) on exhaust emission inspections propose tailpipe tests or conditional use of OBD checks for Euro 5 vehicles and free choice between tailpipe tests or OBD checks for Euro 6 vehicles.

CITA strongly advises against having a free choice between tailpipe and OBD inspections, but instead recommends a combination of default tailpipe emission tests and optional OBD emission system checks. The European Parliament's position reflects this already clearly. Alternatively, the Trilogue Presidency's compromise proposal could be changed as show in the annex. Also the meaning of "assessment of equivalence" is subject to wide interpretation and will require significant clarification.

One must seriously consider the consequences of only using OBD checks:

- will mainly focus on theoretic emission inspection models and not measure directly the exhaust gases
- will be subject to tampering of the OBD system and the exhaust system components
- will not include a third party. The exhaust system design, threshold setting, maintenance and the performance evaluation will all be performed by the OEM.

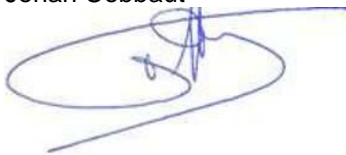
Combining tailpipe emissions tests with OBD exhaust emission system checks is an opportunity to detect additional failures.

Therefore, CITA strongly insists that future exhaust emission inspections consist of a combination of default tailpipe emission tests and optional OBD inspections. This to guarantee an effective, qualitative and regular evaluation of the environmental performance of the related vehicle fleet in Europe; to support well maintained vehicles and to keep the benefits of sophisticated and costly vehicles gas exhaust emission reductions systems in good operational conditions over the lifetime of the vehicle.

Several studies hold information on these matters, including the importance of combined tailpipe emission tests and OBD methods:

- The TEDDIE from 2011, a study on future roadworthiness emission tests by CITA for the European Commission,
- The UTAC Study in 2013, a large scale study on the comparison of tailpipe versus OBD emission test, by the French Authorities,
- The on-going German study "Emission Check 2020".

Johan Cobbaut



CITA President

**ANNEX to the CITA POSITION PAPER (December 2013) on “The advantages of combining tailpipe emission tests with OBD checks during mandatory periodical technical inspections of in-use vehicles”**

Proposed changes, highlighted in yellow, to the Trilogue Presidency’s compromise proposal for its amendments to items 8.2.1.2 and 8.2.2.2 (Part of the annex to the Proposal for a Regulation of the European Parliament and of the Council on periodic roadworthiness tests for motor vehicles and their trailers and repealing Directive 2009/40/EC).

8.2.1.2 Gaseous emissions (Petrol engines)

**Parliament’s proposal:**

Measurement using an exhaust gas analyser in accordance with the requirements<sup>(1)</sup>. [...] ***The tailpipe testing shall always be the default method of exhaust emission assessment, even if combined with OBD.***

***For vehicles equipped with OBD in accordance with requirements<sup>(1)</sup>, reading of OBD information and checks (readiness) on the proper functioning of the OBD system at engine idle in accordance with the manufacturer's recommendations and other requirements<sup>(1)</sup>. Measurement of NOx levels by means of a suitable equipment/suitably equipped gas analyser, using existing tailpipe test methods.***

**Presidency's compromise proposal:**

**- For vehicles up to emission class Euro 5/V<sup>xx</sup>:**

Measurement using an exhaust gas analyser in accordance with the requirements<sup>(1)</sup> or reading of OBD. **Tailpipe testing shall be the default method of exhaust emission assessment. On the basis of an assessment of equivalence, and by taking into account the relevant type-approval legislation, Member States may authorise the use of OBD in accordance with the manufacturer's recommendations and other requirements.**

**- For vehicles as of emission class Euro 6/VI<sup>xxx</sup>:**

**Measurement using an exhaust gas analyser in accordance with the requirements<sup>(1)</sup> or reading of OBD in accordance with the manufacturer's recommendations and other requirements<sup>(1)</sup>.**

Measurements not applicable for two-stroke engines.

**<sup>xx</sup> Type approved according to Directive 70/220/EEC, Regulation (EC) No 715/2007 (Euro 5), Directive 88/77/EEC and Directive 2005/55/EC.**

**<sup>xxx</sup> Type approved according to Regulation (EC) No 715/2007 and Regulation (EC) No 595/2009.**

**Recital 6a (new):**

**During the last two decades, requirements on vehicle**

**Proposed changes by CITA to the Presidency's compromise proposal:**

**- For vehicles up to emission class Euro 5/V<sup>xx</sup>:**

Measurement using an exhaust gas analyser in accordance with the requirements<sup>(1)</sup>. **Tailpipe testing shall be the default method of exhaust emission assessment. On the basis of an assessment of equivalence, and by taking into account the relevant type-approval legislation, Member States may authorise the use of OBD as additional measure in accordance with the manufacturer's recommendations and other requirements.**

**- For vehicles as of emission class Euro 6/VI<sup>xxx</sup>:**

**Measurement using an exhaust gas analyser in accordance with the requirements<sup>(1)</sup> and reading of OBD in accordance with the manufacturer's recommendations and other requirements<sup>(1)</sup>.**

Measurements not applicable for two-stroke engines.

**<sup>xx</sup> Type approved according to Directive 70/220/EEC, Regulation (EC) No 715/2007 (Euro 5), Directive 88/77/EEC and Directive 2005/55/EC.**

**<sup>xxx</sup> Type approved according to Regulation (EC) No 715/2007 and Regulation (EC) No 595/2009.**

**Recital 6a (new):**

	<p><u>emissions for type-approval have been continuously strengthened. However, air quality has not improved as much as predicted with the tightening of emission standards for vehicles, especially in respect of nitrogen oxides (NOx) and fine particulate matter. Possibilities to improve test cycles to match on-road conditions should be closely examined in order to develop future solutions, including the establishment of test methods for the measurement of NOx levels and of limit values for NOx emissions.</u></p>	<p><u>During the last two decades, requirements on vehicle emissions for type-approval have been continuously strengthened. However, air quality has not improved as much as predicted with the tightening of emission standards for vehicles, especially in respect of nitrogen oxides (NOx) and fine particulate matter. Possibilities to improve test cycles to match on-road conditions should be closely examined in order to develop future solutions, including the establishment of test methods for the measurement of NOx levels and of limit values for NOx emissions.</u></p>
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8.2.2.2 – Opacity (Diesel engines)

Parliament's proposal:

(a) Exhaust gas opacity to be measured during free acceleration (no load from idle up to cut-off speed) with gear lever in neutral and clutch engaged. ***The tailpipe testing shall always be the default method of exhaust emission assessment, even if combined with OBD.***

***For vehicles equipped with OBD in accordance with requirements <sup>(1)</sup>, reading of OBD information and checks (readiness) on the proper functioning of the OBD system at engine idle in accordance with the manufacturer's recommendations and other requirements <sup>(1)</sup>.***

Presidency's compromise proposal:

a) - **For vehicles up to emission class Euro 5/V<sup>xx</sup>:**

Exhaust gas opacity to be measured during free acceleration (no load from idle up to cut-off speed) with gear lever in neutral and clutch engaged or reading of OBD. **The tailpipe testing shall be the default method of exhaust emission assessment. On the basis of an assessment of equivalence, Member States may authorise the use of OBD in accordance with the manufacturer's recommendations and other requirements.**

- **For vehicles as of emission class Euro 6/VI<sup>xxx</sup>:**

Exhaust gas opacity to be measured during free acceleration (no load from idle up to cut-off speed) with gear lever in neutral and clutch engaged or reading of OBD **in accordance with the manufacturer's recommendations and other requirements <sup>(1)</sup>.**

<sup>xx</sup> **Type approved according to Directive 70/220/EEC, Regulation (EC) No 715/2007 (Euro 5), Directive 88/77/EEC and Directive 2005/55/EC.**

<sup>xxx</sup> **Type approved according to Regulation (EC) No 715/2007 and Regulation (EC) No 595/2009.**

Proposed changes by CITA to the Presidency's compromise proposal:

a) - **For vehicles up to emission class Euro 5/V<sup>xx</sup>:**

Exhaust gas opacity to be measured during free acceleration (no load from idle up to cut-off speed) with gear lever in neutral and clutch engaged. **The tailpipe testing shall be the default method of exhaust emission assessment. On the basis of an assessment of equivalence, Member States may authorise the use of OBD in addition and accordance with the manufacturer's recommendations and other requirements.**

- **For vehicles as of emission class Euro 6/VI<sup>xxx</sup>:**

Exhaust gas opacity to be measured during free acceleration (no load from idle up to cut-off speed) with gear lever in neutral and clutch engaged **and reading of OBD in accordance with the manufacturer's recommendations and other requirements <sup>(1)</sup>.**

<sup>xx</sup> **Type approved according to Directive 70/220/EEC, Regulation (EC) No 715/2007 (Euro 5), Directive 88/77/EEC and Directive 2005/55/EC.**

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