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CITA'S VIEW ON EURO 7/VII



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1 INTRODUCTION

CITA welcomes the introduction of Euro 7/VII to further reduce emissions from road transport, making another important contribution to improving the environment.

In particular, the expansion of the relevant real-world driving situations, the limitation of other, previously unrestricted pollutants, as well as the inclusion of non-exhaust emissions and specifications for the durability of traction batteries are very welcome.

For the first time, the PTI is identified and taken into account in the type approval regulations as an important measure to ensure the emission level over the lifetime of vehicles on the road. Similar to other measures for lifetime compliance, such as the specifications for the in-service-conformity tests (ISC), the interests for a later PTI in the type approval regulations must be given even greater consideration.

The PTI helps to ensure compliance as a modern and effective tool, is also neutral and therefore allows independent control of the emission values for each individual vehicle.

The new requirements for Euro 7/VII will require and generate more modern technologies, fuels, and vehicle systems. An equally effective and modern PTI is necessary to ensure that the vehicles sustainably maintain a low level of emissions throughout their service life.

2 INTEGRATION OF PTI

The aim of the European PTI Directive (2014/45/EU) is to increase road safety in the EU and to ensure the environmental compatibility of vehicles through regular inspections throughout their entire service life. We therefore welcome the fact that the PTI is recognized in the Euro 7/VII legislation as an important tool for neutrally and independently monitoring and assessing the emission level of each individual vehicle in the EU over its entire life cycle.

Periodic emissions testing helps reduce air pollution by more effectively identifying vehicles causing excessive emissions due to either technical defects, inadequate maintenance, lack of repairs or tampering through regular roadworthiness tests and roadside inspections. In the forthcoming revision of the PTI directive, the new vehicle technology developments must now be given greater consideration.

Furthermore, it is important to harmonize requirements for certification, type approval and regular inspection to ensure a holistic test of applicable emission limit values over the entire life cycle.

We therefore propose to include the respective PTI method according to 2014/45/EU (Annex 1, No. 8.2 Exhaust Emissions) as a fixed component and test point in the type approval test. This would create a close link between type approval and the subsequent PTI and ensure that the vehicles are easily able to perform the specified PTI procedure and comply with the limit values.

3 TECHNOLOGY AND FUEL NEUTRAL LIMITS

We welcome the technology and fuel-neutral specification of emission limits that can be derived from meeting air quality targets and the goals of the European Green Deal. This results in particular in an adjustment of the limit values for nitrogen oxide (NO_x) emissions and a revision of the limit values for particle emissions. This should be reflected in the regular emission monitoring under the PTI.

4 LIMITATION OF PREVIOUSLY UNREGULATED POLLUTANTS

We support the limitation of any emissions harmful to health and the climate from road traffic. We therefore support the planned introduction of limit values for the previously unrestricted pollutants nitrous oxide (N₂O), methane (CH₄), ammonia (NH₃) and formaldehyde (HCHO) due to the high climate impact of the compounds and the harmfulness to the human organism and the environment.

5 CONSIDERING OF NON-EXHAUST EMISSIONS FOR THE 1ST TIME

Particulate emissions from brake and tire wear will in future be relevant to type approval for all drive types, from combustion engines to electric vehicles. CITA welcomes this expansion of emissions legislation to include non-combustion engine emissions. To ensure durability and compliance with the specifications over the lifetime, there may be influences on the PTI. System approvals for replacement and aftermarket parts are necessary. This means that only certain, specified parts should be permitted in relation to tire types/manufacturers, brake pads and brake pad/brake disc combinations and more. To check this, there must be general and effective ways of identifying the installed parts.

This would be possible via clear identification (e.g., approval number) or markings which are accessible for a visual inspection. Advanced technologies (e.g., contactless identification) are of course preferable.

There should also be possibilities for checking alternative systems (e.g., regenerative braking) or new technical developments. However, this should be considered when developing the specifications.

6 INTRODUCTION OF OBM

The expansion of on-board diagnostics (OBD) into continuous on-board monitoring (OBM) considers the complexity of modern combustion engines and the downstream after treatment systems and therefore is generally welcomed by CITA. The use of this system for PTI and for roadside inspections represents an easy and efficient method and is an important contribution to digitization in the field of vehicle inspection.

From our experience, however, no robust, fail-safe and, above all holistic emission monitoring is possible with the self-diagnosis of single systems that is available today ^[1].

Except for NO_x and a few other emissions relevant sensors (e.g., air mass, exhaust gas temperatures, pressures), OBM represents a system requirement that has yet to be developed for Euro 7. The OBM system may have consequences for the consumer/vehicle owner. We therefore consider a legal protection of the measured values and results of the OBM system to be absolutely necessary. Measured values must be trustworthy and unjustified repairs must be avoided. The sensors/measuring variables required for the OBM system must therefore be defined and the respective accuracies must be specified. The accuracies should be checked as part of the initial emission type approval test.

Regular and independent third-party testing (PTI) would ensure both the legal security of the results out of the OBM system and the control of emission stability over the entire service life of the vehicles. This is ensured by a tailpipe measurement as part of the PTI with specified, certified, and periodically verified emission measuring devices and the comparison with the OBM data. A necessary prerequisite is secure and standardized access to the OBD and OBM system.

Unanswered questions about data security and data sovereignty must be clarified in a timely manner.

At least the following parameters should be secured via the OBD interface and available under all conditions: NO_x (before and after aftertreatment systems), NH₃ (future), PN/PM (future), exhaust gas temperatures (to determine readiness), geofencing data.

By using OBM, we also recommend the specific active evaluation of deNO_x exhaust aftertreatment systems. This can be done using sensors and information already available in vehicles today through the NO_x/CO₂ ratio. This “QNO_x” methodology was presented to the EU Commission in 2021 [2]. It is robust enough to avoid false error messages.

We recommend expanding or using the OBD interface or a comparable interface for data-related and road safety-related vehicle systems. In this way, systems such as driver assistance systems and automated driving functions could be checked just as efficiently in the short term.

7 MANUFACTURER SELF-DECLARATION INSTEAD OF TYPE APPROVAL

According to Annex V, some system tests are only declared or only demonstrated by the manufacturer as part of the initial type approval test, but not extensively tested. The European Commission proposes to address the Ambient Temperature Correction Test (ATCT), the measurement of crankcase emissions, the durability of emission reduction systems, the function of the OBD and the OBM system and battery durability by manufacturer declarations.

The systems only have to be available for later conformity-of-production (COP) and in-service-conformity (ISC) tests. Especially in the cases of durability of after treatment systems, the OBD and the OBM system and the battery durability (comparing of on-board determination to real measurements) we do not think this is sufficient.

As previously described, the specified content and accuracy as well as secure access to these systems is of great importance and should therefore be part of the initial type approval testing.

8 DURABILITY OF TRACTION BATTERIES

For reasons of environmental and consumer protection, we advocate setting minimum specifications for the real usable capacity of traction batteries. We would like to point out that when developing the specifications, care must be taken to ensure that the so-called SoH (state of health) and the on-board determination of this value are precisely defined. The respective current value should be transparent and made available to the relevant institutions and the vehicle owner/driver in an appropriate manner. An integration into the OBD/OBM system seems sensible.

9 EARLY INTRODUCTION OF EURO 7/VII

To achieve the European air quality objectives, an early introduction of Euro 7 / VII is essential. The European Commission proposes to introduce Euro 7/VII from 1 July 2025, for M1, N1 vehicles as well as components and separate technical units for these vehicles. For M2, M3, N2, N3 vehicles as well as components and separate technical units for these vehicles and for O3, O4 trailers, Euro 7/VII must be applied from 1 July 2027.

These deadlines make sense since Europe aims for a target of zero emissions and new CO₂-free motor vehicles from 1 January 2035. However, these application dates are ambitious considering that the technical details have yet to be defined in implementing regulations and timing for development and implementation should be considered.

10 SUMMARY

Euro 7/VII is a key element of the EU clean air policy. The European Commission presented a Euro 7/VII proposal on November 10, 2022. This aims at low real-world emissions from vehicles throughout their lifetime, including the lifetime of traction batteries. Technology and fuel-neutral up-to-date limits for all relevant air pollutants according to state-of-the-art technologies have been defined.

The new Euro-7/VII addresses the emission of harmful air pollutants from internal combustion engines and non-exhaust emissions from all vehicles to protect human health and the environment.

CITA supports the consideration of roadworthiness testing and the implementation of OBM with Euro 7/VII. However, the integration of the PTI as an independent lifetime compliance measure for each individual vehicle could be even stronger. The mutual benefit of an interaction between OBM and PTI should also be considered more clearly.

Many technical details still need to be worked out and defined in the implementing rules.

11 LITERATURE

- [1] Technical studies for the development of Euro 7, Testing, pollutants and emission limits: <https://op.europa.eu/en/publication-detail/-/publication/6a995fe6-5f1d-11ed-92ed-01aa75ed71a1/language-en>

 - [2] QNO_x, future-prove NO_x assessment methodology, ÖAMTC_T-2021-01 or: FVT-015/21/SL EM 20/11/6790.
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12 AUTHORS AND CONTACT DETAILS

CITA, THE INTERNATIONAL MOTOR VEHICLE INSPECTION COMMITTEE, IS THE WORLDWIDE ASSOCIATION OF AUTHORITIES AND AUTHORIZED COMPANIES ACTIVE IN THE FIELD OF VEHICLE COMPLIANCE.

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