

PROPOSAL FOR REGULATION FOR RETROFIT AFTERTREATMENT SYSTEMS FOR ENGINES USED IN NONROAD MOBILE MACHINERY AND AGRICULTURAL TRACTORS WITH RESPECT TO THE EMISSION OF POLLUTANTS

The text reproduced below was prepared by the expert from EUROMOT in order to propose harmonized test procedures for retrofitting engines used in non-road mobile machinery that are already placed on the market.

A. BACKGROUND

Worldwide emissions legislation is developing towards ever tighter exhaust emission limits for engines in non-road mobile machinery (construction machines, agricultural machines, materials handling technology), which will require more efficient emission cleaning concepts as of 2011. These emissions limits will apply to newly introduced engines and machinery in the EU, the USA and Japan. Consistent with these requirements, ultra low sulfur fuel will then be available in these areas.

For efficient air quality control, local environmental zones are increasingly designated in cities or in city centre areas within the EU to comply with directive 2008/50/EC on air quality. In order to meet the particulate and NO_x limit values in these zones, the number of high emitting vehicles, particularly passenger cars and commercial vehicles, is likely to be reduced by the application of tax incentives for low emitting vehicles or by restricting operation of high emitting vehicles.

Mobile machinery will need to be able to operate in these zones. Since the average life cycle of mobile machinery and their engines is much higher than that of road vehicles, the contribution of mobile machinery to meeting the air quality targets will likely not only focus on use of new engines and machinery that will already meet stringent exhaust emission limits, but also on retrofitting with exhaust aftertreatment systems certain existing engines and machines that have already been placed on the market. Whilst not all mobile machines and their engines will be suitable for retrofit, it is nevertheless important that, where used, retrofit systems can be demonstrated to be meeting certain performance requirements.

B. PROPOSAL

EUROMOT proposes to develop a regulation under the 1958 agreement for certification of retrofit systems for engines used in non-road mobile machinery and agricultural tractors. The proposal does not mandate any contracting party to introduce retrofit regulations in their own territory nor does it specify retrofit related limit values. The proposal aims to provide technology neutral harmonized technical requirements for retrofitting engines with an appropriate exhaust aftertreatment system, which is then intended to be the technical basis for any regional or local retrofit regulations.

EUROMOT further proposes that the regulation should be based on the 30th Order amending the German Road Traffic Approval Order (StVZO), Annex XXVII (Federal Gazette 31/05/2007). Rationale is that the structure of this regulation very well matches the general outline of an ECE regulation. Elements from the Californian (Title 13 CCOR, Chapter 14) and the Swiss (SNR 277205) retrofit regulations should be integrated into the general framework in order to allow for the highest degree of international harmonization and to comprise the best technical provisions available today. Instead of numerical limit values, Euromot proposes to establish a classification scheme dependent on the level of pollutant reduction.

Since it is essential that the retrofit systems do not work only on the test bench but also in real world

operation, high importance need to be given to provisions on the proper in use operation of such systems, including operational (in use load patterns) and safety aspects of the machinery in which the engine is installed. While Euromot recognizes that machinery related requirements are beyond the scope of the proposal, guidance on the proper installation of the retrofit system need to be included. Stringent requirements on the pollutant reduction potential, even under typical in use load patterns combined with guidance on the installation will make sure that only high performing retrofit systems will be able to be placed on the market. Requirements such as test cycles, engine preconditioning, test fuels and general emissions testing and measurement provisions should be based on ECE Regulation No. 96.

EUROMOT is asking GRPE advice whether the proposed regulation should be appended to ECE R.96 or be developed as a new regulation.

C. JUSTIFICATION

The existing local diversity of interpretation and implementation of the EU air quality directive 2008/50/EC generated a European wide "patchwork" of regulations on the reduction of pollutant emission by retrofit. A particular problem for mobile machinery is the evaluation criteria for the certification of exhaust aftertreatment systems which diverge very much on the national and regional levels. Meeting the air quality targets is clearly a national task, but national responsibility for the related retrofit system certification requirements has been a major obstacle for harmonization.

The manufacturers of diesel engines and their suppliers, together with the machinery manufacturers play a significant role in environmental protection. They consistently improve their products towards lower emissions. In order to reduce emissions from those machines that are not replaced by new models, to best serve society it is of utmost importance that the technical requirements for certification of retrofit systems are harmonized. This will, for the sake of better environment, facilitate market penetration of retrofit systems that have been demonstrated to be effective. Certification of retrofit systems to a harmonised standard will provide the opportunity for greater market penetration of such systems at lower cost, compared to developing and separately certifying such systems for each national or regional scheme.

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