

PROPOSAL TO DEVELOP A GLOBAL TECHNICAL REGULATION CONCERNING THE  
EXHAUST EMISSIONS FROM NON-ROAD MOBILE MACHINERY (NRMM)

Technical Sponsor: European Commission (EC)

Objective of this proposal

The objective of this proposal is to establish a Global Technical Regulation (GTR) for non-road machinery engine emissions under the 1998 Global Agreement. The basis will be the harmonised non-road test protocol, including test cycles, as developed by the NRMM informal group of the GRPE (see also the informal document No. 1 distributed during the 45<sup>th</sup> GRPE session). The work on the GTR will provide an opportunity to consider, most, if not all, international procedures as well as available technological developments and thus providing all necessary elements for the GTR on NRMM and taking also into account the cost effectiveness of the related laboratory equipment. The outcome of the comparison of the different legislations at world level can be used for other test protocols under GRPE and not only for NRMM.

Some countries have already enforced regulations governing exhaust-emissions from non-road machinery engines but the test procedures vary. To ensure the maximum benefit to the environment as well as the efficient use of energy, it is desirable that as many countries as possible use the same test protocol for emission control. For this a GTR is an important step forward. In the light of the ongoing international effort on improving the emission regulations from NRMM engines, we believe that this would be an excellent opportunity to develop and establish a GTR in this area.

Everyone would benefit from the harmonisation of the regulations. The benefits of the government will be the harmonisation of requirements and a general global reduction of the emission levels. Manufacturers of non-road machinery are already operating in a world market and it is economically inefficient for manufacturers to have to prepare different engine models in order to meet different emission regulations. To enable manufacturers to develop new models most effectively it is desirable that a GTR should be developed. Finally, the consumer would benefit by having a choice of engines built to a globally recognised standard.

Description of the proposed regulation

The work within the NRMM WG, which was started in 2003, was preceded by the work of an international task force on the development of a real world, representative test cycle for non-road machinery engines. Major regulators from USA, Japan and Europe and industries were stakeholders in this effort. After intense work throughout 1998 to 2002 an internationally representative cycle was derived and validated in an extensive test campaign. This test cycle was adopted by the regulations on NRMM engines enforced in the European Union (April 21<sup>st</sup> 2004), in USA (June 29<sup>th</sup> 2004) and it is currently under examination by the Japanese Ministry of the Environment. This represents a very solid base for the UN/ECE effort on harmonization which could result in the proposed GTR.

The proposed GTR will be based on this task forces work which represents a worldwide pattern of real non-road machinery operation.

The NRMM WG is performing an extensive comparison exercise between the different existing regulations and international standards. The comparison report and the identification of differences have been elaborated and are presented in a large working document by EC DG-JRC. This way all the open items are presented and possible solutions can be discussed. This implies that the future GTR will include the most up-to-date technical and procedural improvements currently under consideration. In this way the GTR will not only reflect the vehicle testing under cycle conditions representative for real world operation but it will also improve the global standards of emission measurements from existing and future NRMM machinery to highest level.

### **Existing Regulations and International standards**

#### UNECE Regulation:

UNECE Regulation No. 96 – UNIFORM PROVISIONS CONCERNING THE APPROVAL OF COMPRESSION-IGNITION (C.I.) ENGINES TO BE INSTALLED IN AGRICULTURAL AND FORESTRY TRACTORS WITH REGARD TO THE EMISSIONS OF POLLUTANTS BY THE ENGINE

#### EU:

Directive 97/68/EC of the European Parliament and of the Council of 16 December 1997 on the approximation of the laws of the Member States relating to measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery.

Directive 2002/88/EC of the European Parliament and of the Council of 9 December 2002 amending Directive 97/68/EC on the approximation of the laws of the Member States relating to measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery.

Directive 2004/ 26/EC of the European Parliament and of the Council of 21 April 2004 amending Directive 97/68/EC on the approximation of the laws of the Member States relating to measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery.

#### Japanese Regulation:

Road Vehicle Act, Law No.185 of June 1, 1951, as last amended by law No.55 of May 26, 2004, Article 41 “Systems and Devices of Motor Vehicles”;

Safety Regulations for Road Vehicles, Ordinance No. 67 of July 28, 1951, as last amended by ordinance No. 97 of December 2, 2004, Article 31 “Emission Control Device”;

Announcement That Prescribes Details of Safety Regulations for Road Vehicles, Announcement No. 619 of July 15, 2002, as last amended by announcement No. 1477 of December 2, 2004, Article 41 “Emission Control Device” and Attach 43 “Measurement Procedure for 8-Mode Exhaust Emission of Diesel-Powered Special Motor Vehicles”;

TRIAS 24-8-2003 “8-Mode Exhaust Emission Test Procedure for Diesel-Powered Special Motor Vehicles”.

United States of America Regulations:

Nonroad Diesel Engine Regulations:

Tier 3 Nonroad Diesel

40 CFR 89

Tier 4 Nonroad Diesel

40 CFR 1039 Control of Emissions from New and In-use Nonroad Compression Ignition Engines

40 CFR 1065 Test Procedure and Equipment

40 CFR 1068 General Compliance Provisions for Nonroad Programs

Nonroad Diesel Fuel Regulations:

40 CFR 80

ISO Standards:

ISO 8178-1 Reciprocating internal combustion engines — Exhaust emission measurement — Part 1:

Test-bed measurement of gaseous and particulate exhaust emissions

ISO DIS 8178-11 Reciprocating internal combustion engines — Exhaust emission measurement —

Part 11: Test-bed measurement of gaseous and particulate exhaust emissions from engines used in non-road mobile machinery under transient test conditions

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