

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK



8254

Accredited to
ISO/IEC 17025:2017

Global Engine Development UK (a division of Perkins Engines Company Limited)

Issue No: 010 Issue date: 04 March 2021

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Testing performed at the above address only

DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Non-Road Diesel Engines (Variable and Constant Speed, including Marine, Genset) and Associated After treatment systems	<p>Certification Testing</p> <p>Power Check Non-Road Transient Cycle</p> <p>8 Mode Ramped Modal Emissions Cycle</p> <p>4 & 5 Mode Ramped Modal Emissions Cycle</p> <p>8 Mode Discrete Mode Emissions Cycle</p> <p>4 & 5 Mode Discrete Mode Emissions Cycle</p> <p>Free Acceleration Smoke Test EPA Smoke Test</p> <p>Properties measured:</p> <p>Speed Torque Gaseous Emissions (CO, HC, NOx, CH₄, NH₃, N₂O) Particulate mass Smoke opacity Ambient temperature and pressure Combustion air humidity General engine temperatures and pressures Throttle position Particulate Count</p>	<p>Engine Testing Procedures 40 CFR Part 1065</p> <p>Control of Emissions from New and In-Use Non-Road Compression Ignition Engines 40 CFR Part 1039</p> <p>Control of Emissions from New and In-Use Non-Road Compression Ignition Engines 40 CFR Part 89</p> <p>Control of Emissions from New and In-Use Marine Compression Ignition Engines and Vessels 40 CFR Part 1042</p> <p>Control of Emissions from Marine Compression Ignition Engines 40 CFR Part 94</p> <p>Emission of Gaseous and Particulate Pollutants from Internal Combustion Engines to be installed in Non Road Mobile Machinery Directive 97/68/EC of the European Parliament and of the Council and amendments</p> <p>Compression Ignition (CI) Engines to be Installed in Agricultural and Forestry Tractors and in Non Road Mobile Machinery with Regard to the Emissions of Pollutants by the Engine ECE Regulations 96-03</p>



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<p>Non-Road Diesel Engines (Variable and Constant Speed, including Marine, Genset) and Associated After treatment systems (cont'd)</p>	<p>Certification Testing</p>	<p>The Approval of Compression Ignition (CI) Engines with Regard to the Emission of Visible Pollutants and the Measurement of Power ECE Regulation 24</p> <p>The Approval of Internal Combustion Engines to be Installed in Agricultural and Forestry Tractors and Non Road Mobile Machinery with Regard to the Measurement of Net Power, Net Torque, and Specific Fuel Consumption ECE Regulation 120</p> <p>Japan Ministry of Land Infrastructure and Transport (MLIT) Test Procedure for Exhaust Emission of Diesel Special Motor Vehicles Japanese Type Approval Handbook: TRIAS 24-8</p> <p>Japan Ministry of Land Infrastructure and Transport (MLIT) Test Procedure for Measuring Diesel Smoke During Rapid Acceleration Under No Load Condition Japanese Type Approval Handbook TRIAS 24-8</p> <p>Regulation on the Method and Procedure of Certification and Inspection of Emission Gas from Engine for Construction Equipment Korea Ministry of Environment (MOE)</p> <p>Details of Standards of Visible and Gaseous Pollutants from Diesel Engines for Construction Vehicles India MoRTH/CMVR/ TAP-115/116 Part X Subpart B</p> <p>International Maritime Organisation (IMO) NOx Technical Code MARPOL Annex VIMARPOL Annex vi</p>



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<p>Non-Road Diesel Engines (Variable and Constant Speed, including Marine, Genset) and Associated After treatment systems (cont'd)</p>	<p>Certification Testing</p>	<p>Exhaust and Pollutant Particle Emissions from Diesel Engines – Central Commission for the Navigation of the Rhine Charter *a Article 8a.01</p> <p>Reciprocating Internal Combustion Engines – Exhaust Emission Measurement – Test Bed Measurement of Gaseous and Particulate Exhaust Emissions ISO 8178-1</p> <p>Reciprocating Internal Combustion Engines – Exhaust Emission Measurement – Steady State Test Cycles for Different Engine Applications ISO 8178-4</p> <p>Internal Combustion Engines – Determination and Method for the Measurement of Engine Power ISO 14396</p> <p>Switzerland Ordinance on Air Pollution Control (OAPC) Annex 4 Section 31</p> <p>Regulation (EU) 2016/1628 of the European Parliament and the Council of 14 September 2016 on requirements relating to gaseous and particulate pollutant emission limits and type-approval for internal combustion engines for non-road mobile machinery, amending Regulations (EU) No 1024/2012 and (EU) No 167/2013, and amending and repealing Directive 97/68/EC</p>



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Non-Road Diesel Engines (Variable and Constant Speed, including Marine, Genset) and Associated After treatment systems (cont'd)	Certification Testing	Test Method, Testing Equipment and Related Procedures for Type Approval and Conformity of Production (CoP) testing of Agricultural Vehicles (CEVs) & Combine Harvesters for Emmission Norms as per CMV Rules 115 and 126 Part-7 – A1 Bharat Stage (CEV/TREM) – IV Part-7 – A2 Bharat Stage (CEV/TREM) – V
Non-Road Diesel Engines (Variable and Constant Speed, including Marine, Gen-set) and Associated After treatment systems	General Development Gaseous and Particulate Emission Testing Measured Parameters (for general development use) - Gaseous Emissions CO - Low Range up to 3000ppm, High Range up to 5000ppm HC - Low Range up to 500ppm, High Range up to 2000ppm NOx - Low Range up to 500ppm, High Range up to 1500ppm Particulate Mass (0 to 400 milligram)	Reciprocating Internal Combustion Engines – Exhaust Emission Measurement – Test Bed Measurement of Gaseous and Particulate Exhaust Emissions ISO 8178-1 and ISO 8178-4. Control of Emissions from New and In-Use Non-Road Compression Ignition Engines 40 CFR Part 89.



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Non-Road Diesel Engines (Variable and Constant Speed, including Marine, Gen-Set) and Associated After treatment systems	<p>Performance Testing</p> <p><i>Measured Parameters -</i></p> <p>Engine Speed (0 to 5000 RPM)</p> <p>Torque (-400 to 1500 Nm)</p> <p>General Engine Temperatures and Pressures (0 to 1000 °C) (0 to 1000 KPa)</p> <p>Fuel Flow (0 to 100 Kg/Hr)</p> <p>Particulate Mass (0 to 400 milligram)</p> <p>Relative Humidity (%RH)</p> <p>Analogue Input (0 to 10 Volt)</p>	<p>Documented In-House Methods referenced within Quality Manual, Customer Procedures and International Standards</p> <p>Internal Combustion Engines – Determination and Method for the Measurement of Engine Power ISO 14396</p> <p>Control of Emissions from New and In-Use Non-Road Compression Ignition Engines 40 CFR Part 89.</p>
Non-Road Diesel Engines (Variable and Constant Speed, including Marine, Gen-set) and Associated After treatment systems	<p>Durability/Validation Testing</p> <p><i>Measured Parameters -</i></p> <p>Engine Speed (0 to 5000 RPM)</p> <p>Torque (-480 to +1562Nm)</p> <p>General engine temperatures and pressures (0 to 1000 °C) (0 to 1000 KPa)</p> <p>Fuel Flow (0 to 100 Kg/Hr)</p> <p>Analogue Input (0 to 10 Volt)</p>	<p>Documented In-House Methods referenced within the Quality Manual, Customer Procedures and International Standards.</p> <p>Internal Combustion Engines – Determination and Method for the Measurement of Engine Power ISO 14396</p> <p>Documented In-House Methods, Customer Procedures and International Standards.</p> <p>Internal Combustion Engines – Determination and Method for the Measurement of Engine Power ISO 14396</p>



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Non-Road Diesel Engines (Variable and Constant Speed, including Marine, Gen-set) and Associated After treatment systems	Environmental Testing Low Temperature <i>Measured Parameter -</i> Temperature (Ambient to -45°C) High Temperature <i>Measured Parameter -</i> Temperature (Ambient to +55°C)	Documented In-House Methods, Customer Procedures and International Standards. Internal Combustion Engines – Determination and Method for the Measurement of Engine Power ISO 14396
	Tilt Testing <i>Measured Parameter -</i> Tilt Angle (Up to 45° tilt)	
END		