Designation: D 6975 – 03

An American National Standard

Standard Test Method for Cummins M11 EGR Test[1]

This standard is issued under the fixed designation D 6975; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 The test method covers a heavy-duty diesel engine test procedure conducted under high soot conditions to evaluate oil performance with regard to valve train wear, power cylinder wear, sludge deposits, and oil filter plugging[2] in an EGR environment. This test method is commonly referred to as the Cummins M11 Exhaust Gas Recirculation Test (EGR).

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* See Annex A1 for general safety precautions.

1.4 *Table of Contents*:

Scope	1
Referenced Documents	2
Terminology	3
Summary of Test Method	4
Significance and Use	5
Apparatus	6
Test Engine Configuration	6.1
Test Engine	6.1.1
Oil Heat Exchanger, Adapter Blocks, and Block Off Plate	6.1.2
Oil Filter Head Modification	6.1.3
Oil Pan Modification	6.1.4
Engine Control Module	6.1.5
Engine Position Sensor	6.1.6
Air Compressor and Fuel Pump	6.1.7
Test Stand Configuration	6.2
Engine Mounting	6.2.1
Intake Air System	6.2.2
Aftercooler	6.2.3
Exhaust System	6.2.4
Exhaust Gas Recirculation System	6.2.5
Fuel Supply	6.2.6
Coolant System	6.2.7
Pressurized Oil Fill System	6.2.8
External Oil System	6.2.9
Crankcase Aspiration	6.2.10
Blowby Rate	6.2.11
System Time Responses	6.3
Oil Sample Containers	6.4
Mass Balance	6.5
Engine and Cleaning Fluids	7
Test Oil	7.1
Test Fuel	7.2
Engine Coolant	7.3
Solvent	7.4
Preparation of Apparatus	8
Cleaning of Parts	8.1
General	8.1.1
Engine Block	8.1.2
Cylinder Head	8.1.3
Rocker Cover and Oil Pan	8.1.4
External Oil System	8.1.5
Crosshead Cleaning and Measurement	8.1.6
Rod Bearing Cleaning and Measurement	8.1.7
Ring Cleaning and Measurement	8.1.8
Injector Adjusting Screw Cleaning and Measurement	8.1.9
Engine Assembly	8.2
General	8.2.1
Parts Reuse and Replacement	8.2.2
Build-Up Oil	8.2.3
Coolant Thermostat	8.2.4
Oil Thermostat	8.2.5
Fuel Injectors	8.2.6
New Parts	8.2.7
Operational Measurements	8.3
Units and Formats	8.3.1
Instrumentation Calibration	8.3.2
Temperatures	8.3.3
Pressures	8.3.4
Flow Rates	8.3.5
Intake and Exhaust CO_2 Measurement	8.3.6
Engine/Stand Calibration and Non-Reference Oil Tests	9
General	9.1
New Test Stand	9.2
New Test Stand Calibration	9.2.1
Stand Calibration Period	9.3
Stand Modification and Calibration Status	9.4
Test Numbering System	9.5
General	9.5.1
Reference Oil Tests	9.5.2
Non-Reference Oil Tests	9.5.3
Reference Oil Test Acceptance	9.6
Unacceptable Reference Oil Test	9.7
Reference Oil Accountability	9.8
Non-Reference Oil Tests	9.9
Last Start Date	9.9.2
Test Procedure	10
Engine Installation and Stand Connections	10.1
Coolant System Fill	10.2
Oil Fill for Break-in	10.3
Engine Build Committed	10.3.3
Fuel Samples	10.4
Engine Warm-up	10.5

[1] This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.B0 on Automotive Lubricants.

Current edition approved Nov. 1, 2003. Published January 2004.

[2] The ASTM Test Monitoring Center will update changes in this test method by means of Information Letters. Information letters may be obtained from the ASTM Test Monitoring Center, 6555 Penn Avenue, Pittsburgh, PA 15206-4489, Attention: Administrator.

Copyright © ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States.