The Coordinating European Council for the Development of Performance Tests for Fuels, Lubricants and Other Fluids

18 December 2025

Letter of Interest
Call for Sponsors for the Test Development Group for the Proposed New OM 471 FE1 Short Test (CEC TDG-L-120)

Ladies and Gentlemen,

Following the TDG-L-120 meeting that took place on 12 November 2025, CEC re-launching a call for sponsors for the Test Development Group for the Proposed New OM 471 FE1 Short Test. The Needs Statement and Terms of Reference detailing this test are attached as Appendices for reference. These documents will also be made available in the news section of the public part of the CEC Web Site.

This letter invites companies to (re)-express their interest to join the TDG and become a sponsor for this test.

Companies emailing confirmation of sponsorship of this new test are guaranteeing that they will take the following steps:

- To provide a prompt response to the questions asked by the CEC Secretariat in order to complete the administration / financial / legal process.
- To provide sponsorship of this test. ***The sponsorship fee per sponsor will be between 75.000 and 125.000 Euro depending on the number of sponsors***.
- To promptly raise a Purchase Order noting that CEC considers this as a guarantee of payment and attendance at any of the Group's Meetings will not be permitted until this document has been received.
- To pay their sponsorship share to CEC promptly, using their shortest payment terms, stating these terms in the sponsorship confirmation email.
- To promptly sign and return a standard Letter of Intent (LoI). The LoI will be sent to all sponsors once the exact sponsorship fee is known.

Please email confirmation to the CEC Secretariat of your Company's firm intention to become a sponsor, by no later than 1700 hours CET on Monday 16 February 2026.

If you have any questions, please do not hesitate to contact the CEC Secretariat.

Thank you for your continuing support of CEC.

Best regards,
Bénédicte Lambert
CEC Secretariat

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Stuttgart, 27-September-2024

To: CEC MB

NEEDS STATEMENT FOR REPLACEMENT OF OM501LA TEST

ACEA HD-TF-L REQUESTING TEST DEVELOPMENT FROM CEC

Protection against piston deposits and wear are the two most important required features of oils for heavy-duty engines. Controlling these performance parameters on engine oils is key to ensure expected engine lifetimes and to prevent premature engine overhauls.

Over the years, engine tests based on Daimler Truck AG engines have been corner stones in the European engine oil requirements jointly defined by ACEA HD-Lubricant TF members. Daimler Truck AG support for tests rating piston deposit and wear, and their cooperation with CEC enabled ACEA to refer to these tests, when defining requirements for the ACEA E-class engine oils. This approach provided both quality and robustness to finished oils.

The OM501LA engine test (CEC L-101-09) is an important test to support high engine oil quality and robustness level for the ACEA E-class engine oils. The primary test parameter of the OM501LA test is piston cleanliness. This engine test will become unavailable soon, and therefore needs replacement to ensure ACEA E-class maintains its performance level.

The engine for the replacement test should be representative of the current Euro VI heavy-duty engine state-of-the-art. Typical features are common-rail fuel injection and steel pistons.

The replacement test should primarily evaluate engine oils regarding piston cleanliness for Euro VI engines. Additional test parameters, e.g. cylinder liner wear, could be considered, if data confirm that the test meets the requirements with respect to these parameters as well. Test duration and costs should be acceptable to the industry.

The introduction of the OM471 FE1 short test (400 hrs.) would also help the substitution of both CAT 1N and CAT C13 piston cleanliness tests.

The oil sequence ACEA E7 is still a very important engine oil category: Although modern on-highway engines aren’t making use of this category, numerous legacy engines still rely on it. This engine oil category remains very important also for off-highway applications. As the supply of CAT 1N hardware is challenging, it would be appropriate to replace this piston cleanliness test by the OM471 FE1 short test (400 hrs.).

CEC Terms of Reference Document for Heavy-Duty Diesel Piston Cleanliness Test

Proposal

Proposed New Test Development using Daimler Truck AG OM471 FE1 engine for piston cleanliness assessment in the context of ACEA Heavy-Duty Engine Oil Specifications

1. General

Protection against piston deposits and wear are two of the most important features of oils for heavy-duty engines. Controlling these performance parameters on engine oils is instrumental to ensure expected engine lifetimes and preventing premature engine overhauls.

The OM471 FE1 engine test (CEC L-118-21) is in the ACEA HD Oil Sequences for E4/E8, but for lower categories like E7/E11 the CAT 1N and CAT C13 tests need to be replaced.

The replacement test should primarily evaluate piston cleanliness of engine oils in Euro VI engines. Test duration and costs should be acceptable to the industry.

Daimler Truck AG ("Daimler") have offered the Daimler OM471 FE1 short test with a running time of 400 hrs. as a successor under the following conditions:

1. The test procedure stays unchanged.
2. Reference fluids must be unchanged, and referencing will be performed according to the CEC L-118-21 600 hrs. test procedure.
3. Once an agreement is reached between Daimler and CEC, the CEC Surveillance Group will be responsible to support installations at new labs.
4. Daimler can only provide limited secondary level support to the CEC group, multiple new installations at the same time are also not supportable by Daimler, nor can Daimler support installations outside Europe.
5. Any future participating lab must undergo the same schedule of reference tests (3 tests, 2x high reference oil and 1x low reference oil or vice versa) as already completed by the approved labs.

The test method is well-defined therefore the objective is to bring the Daimler OM471 FE1 short test to CEC for CEC Surveillance without a TDG to enable introduction to the ACEA Sequences in compliance with EELQMS requirements providing uninterrupted test availability for piston cleanliness.

What has changed?

Only change is running time from 600 to 400 hrs.

What is thought to cause the problem? (e.g. change in engine technology, engine oil changes, fuel changes, changed additives)

Ongoing need to protect piston cleanliness remains unchanged.

Are there any legislative drivers for developing the test?

Keeping the pistons clean and the rings free is of vital importance for the combustion system to work as designed which is required for compliance with ever tighter emission regulations throughout the engine life.

What is the current state of the art?

For heavy-duty diesel turbocharged common rail engines with steel or aluminium pistons, meeting Euro VI emission standards, are considered state of the art.

Why are any similar existing tests not suitable?

Former OM501LA is no longer available, and it is very challenging to support CAT 1N and CAT C13 in the future. The OM471 FE1 short test with a shorter running time as for CEC L-118-21 can fill that gap.
It shall be noted that the OM471 FE1 short test is fully developed and already available as OEM in-house test and deemed suitable by ACEA to provide ongoing piston cleanliness protection.

Is it a preventative test or an issue already happening in the field? (Preventative means that the test is preventing an issue which is not yet happening in the field but for which there is an agreed likelihood of occurring.)

The new test remains a preventative test as the original CEC L-101-09 and the CAT tests prevented field issues due to its inclusion in the ACEA oil sequences.

What is the target timing for the development of the test?

The new test is intended for introduction into the next issue of the ACEA Oil sequences – currently projected in 2026. The test shall be available for at least 5 years with a current projection for up to 10 years.

For lubricant tests, what ACEA specification should it be available for?

The new test is meant to be introduced in the ACEA heavy-duty engine oil sequences as a successor of the CEC L-101-09 and CAT 1N and CAT C13.

What ACEA category would it be required for?

Prime objective is the introduction in E7 and E11 categories.

Are there any specific requirements/capabilities for the test development lead lab?

The test is already available at independent labs as a Daimler proprietary test. Therefore, it is intended to proceed directly to CEC Surveillance Group Status, upon confirmation that CEC Phase 2 requirements are being met.

What is the objective for the test?

The objective of the new test is to assess lubricant performance with respect to piston cleanliness. For categories E7/E11, the test is intended to maintain piston cleanliness performance at a similar performance level as currently specified by the OM501LA or the CAT 1N and CAT C13 in ACEA 2022.

What is the primary performance criteria measured in the test i.e. sludge, soot handling, etc

Primary performance criterion is Piston Cleanliness.

What is/are the secondary performance criteria measured in the test – if any?

Wear performance criteria might be a second criteria.

2. Hardware

Who will provide the engine/equipment for the test?

Daimler offers the hardware and the predeveloped in-house test method to CEC.

The Engine hardware is produced in Mannheim and supplied via Daimler Truck AG.

Main engine information:

- Type and size:
  Daimler Truck AG OM471 FE1, 12.8-litre in-line six-cylinder, Euro VI
  Max. Power: 390 KW
  Max. Torque: 2600 Nm
  Key features included steel pistons, twin overhead composite camshafts, singular common-rail injection system, asymmetric exhaust gas turbocharger, emission control based on SCR technology, exhaust gas recirculation and particulate filter.

3. Test Procedure

Overall running time: 401 hrs.

- 1 h run-in and power checks
- 400 hrs. main run

4. Test Program:

Mixed stage high-load program with relative high oil temperature and no oil top-ups.

Are there any safety considerations?

Normal precautions for engine dynamometer operation apply.

Has a pre-development phase (e.g. CEC Special Project group) been conducted for the test?
- Who conducted this?

The test method is available as a Daimler in-house method. The test is already available at commercial labs as a Daimler proprietary test.

What were the key findings relating to the test procedure?

Relative to the OM501LA and CAT 1N and CAT C13 the new test is more demanding to the lubricant.

Are there any mandatory requirements that should be reflected in the procedure?

Daimler in-house method specifies the mandatory requirements.

If replacing existing test:
- Are historical data available to the group to help the development?

CEC L-101-09 data are available in the ERC database and can be made available on request.

If based on an OEM test:
- Is it necessary for test sponsors to sign a confidentiality agreement with the OEM?

Daimler will require the laboratories to sign a confidentiality agreement (CA). Without the CA Daimler can share only publicly available information. Confidentiality agreements are already in place with some laboratories. For other sponsors, e.g. other than laboratories, compliance with CEC confidentiality standards is deemed sufficient.

5. Reference Fluids

Fuel: as per CEC L-118

Reference Oils: as per CEC L-118

6. CEC Board Approval

The test development work that is equivalent to the Phase I & II of the CEC process has been done by Daimler in collaboration with partners.

Daimler are confident the test development so far meets CEC Phase I & II sign-off criteria.

Upon CEC MB acceptance of Daimler conditions to offer the test to CEC, Daimler are committed to provide the data and background required to allow the CEC MB an assessment of the compliance of the test method with CEC standards.

The CEC MB is requested to assess Phase I & II completeness, and to facilitate bringing the new test under CEC surveillance without delay to provide uninterrupted of piston cleanliness measurement in the ACEA HD Sequences.

7. Summary of Test Results to be reported

Performance Parameter:

- Piston Cleanliness (Primary Parameter)

8. Confidentiality

The test development is subject to CEC confidentiality constrains.

Attachment

none