



Test Monitoring Center

6555 Penn Avenue
Pittsburgh, PA 15206-4489
(412) 365-1000

SEQUENCE VIB INFORMATION LETTER 01-4
SEQUENCE NUMBER 11
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APPROVED BY ASTM D02.B <u>11/5/01</u> (DATE)

TO: Sequence VIA/VIB Mailing List

SUBJECT: Abbreviated Length Test: VIBSJ

The incorporation of the abbreviated length VIBSJ test into the Sequence VIB test procedure was approved by the Sequence VIB Surveillance Panel at the May 24, 2001 meeting. A new Annex A13 and Section 1.2 were added to the Sequence VIB procedure detailing the VIBSJ requirements. The old Sections 1.2, 1.3, and 1.4 were renumbered to Sections 1.3, 1.4, and 1.5 respectively.

The report forms and data dictionary have been modified accordingly to handle VIBSJ data.

Pete Misangyi
Product Engineering
Ford Motor Company

John L. Zalar
Administrator
ASTM Test Monitoring Center

Attachment

c: ftp://tmc.astm.cmri.cmu.edu/docs/gas/sequencevi/procedure_and_ils/i101-4.pdf

1. Scope

1.1 This test method covers an engine test procedure for the measurement of the effects of automotive engine oils on the fuel economy of passenger cars and light-duty 3856 kg (8500 lb) or less gross vehicle weight trucks. The tests are conducted using a specified 4.6-L spark-ignition engine on a dynamometer test stand. It applies to multiviscosity grade oils used in these applications. Companion test methods used to evaluate engine oil performance for specification requirements are discussed in the latest revision of Specification D 4485.

1.2 This test method also provides for the running of an abbreviated length test that is referred to as the VIBSJ. The procedure for VIBSJ is identical to the Sequence VIB with the exception of the items specifically listed in Annex A13. The procedure modifications listed in Annex 13 refer to the corresponding section of the Sequence VIB test method.

1.3 The unit values stated in this document shall be regarded as the standard. Values given in parentheses are provided for information purposes only. SI units are considered the primary units for this test method. The only exception is where there is no direct SI equivalent such as screw threads, national pipe threads/diameters, tubing size, and so forth.

1.4 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.

1.5 This test method is arranged as follows:

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A13. VIBSJ ABBREVIATED LENGTH TEST REQUIREMENTS

A13.1 Calibration Test Acceptance (refer to Section 10.1)

A.13.1.1 Calibration status of the VIBSJ is determined by successfully calibrating a test stand according to the Sequence VIB requirements detailed in Section 10.1. In other words, a stand that is calibrated for the Sequence VIB testing is automatically calibrated for VIBSJ testing.

A13.2 Procedure

A13.2.1 Operate the test according to test conditions in Table 4.

A13.2.2 Conduct the test as outlined in Section 11.5 through 11.5.5.6.

A13.2.3 The VIBSJ test is complete at the end of Test Oil Phase I, Stage 5 data acquisition (Section 11.5.5.6).

A13.2.4 A VIBSJ test counts as one of the non-reference oil test starts allowed during a Sequence VIB calibration period.

A13.3 Calculation of Test Results (refer to Table 8 for the nominal power and time weighting factors).

A13.3.1 For Stage 1, steps 1 through 6 round and record the 5-min BSFC measurements to 4 decimal places using ASTM rounding.

A13.3.2 Average the BSFC measurements of the six steps to 5 decimal places using ASTM rounding. Units for BSFC are kg/kW-h.

A13.3.3 Multiply the average by the shown nominal power and time factor for Stage 1 (Table 8) and record the answer to 6 decimal places. The unit for this number is kg of fuel consumed.

A13.3.4 Perform calculation steps 13.3.1, 13.3.2 and 13.3.3 for the remaining test Stages (2-5) using the respective nominal power and time factors (TABLE 8).

A13.3.5 Total the mass fuel consumption values for all 5 stages.

A13.3.6 Complete the total fuel consumed calculation detailed in step 1 - 5 above for the BC Before Test Oil and Test Oil.

A13.3.7 Compute the test oil fuel economy improvement (FEI) as follows:

$$\% \text{ FEI} = [(\text{BC Before} - \text{Test Oil}) \div (\text{BC Before})] \times 100$$

A13.3.8 Adjust the FEI result(s) on non-reference oil tests for the stand/engine severity in accordance with Annex A7.