



## Test Monitoring Center

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Sequence IIIG Information Letter 04-2  
Sequence No. 6

June 24, 2004

***ASTM consensus has not been obtained on this information letter. An appropriate ASTM ballot will be issued in order to achieve such consensus.***

TO: Sequence III Mailing List

SUBJECT: Undercrown Rating Area Definition Clarification  
Flow Meter Specifications  
Editorial Corrections  
MRV Reporting  
Amount of Test Oil Used for Camshaft & Lifter Lubrication

This Information Letter addresses specific parts and procedures pertaining to quality, consistency, performance, and accountability of test parts as part of the ongoing effort by the panel to ensure continual process improvement of the Sequence IIIG test. This Information Letter references Draft 2D of the Sequence IIIG Test Procedure.

### Undercrown Rating Area Definition Clarification

During the May 12, 2004 meeting of the Sequence III Surveillance Panel, the panel approved a motion to revise the definition for the area to be rated in the undercrown rating, which is made as part of the overall WPD rating in the test. This new definition is to clarify the area to be rated and not a change to the area to be rated as part of the test. A revised 13.4.2.1 is attached.

### Flow Meter Specifications

During the May 12, 2004 meeting of the Sequence III Surveillance Panel, the panel approved a motion to revise the accuracy requirements for Coriolis fluid flow meters from 0.25% to 0.75% of the reading. A revised 11.8.5 is attached.

### Editorial Corrections

Draft 2D of the Sequence IIIG Test Procedure still contained the requirement to conduct CCS and MRV tests on the final used oil sample in a Sequence IIIG test. This requirement was changed to be part of the Sequence IIIGA Test Annex as part of Sequence IIIG Information Letter 03-4. The MRV and CCS requirements listed in 13.6 were deleted and similar requirements were added in A14.5.

### MRV Reporting

During the May 12, 2004 meeting of the Sequence III Surveillance Panel, the panel approved a motion to revise the definition for MRV reporting to bring them in line with Test Method D4684. Yield Stress values under 35 Pa shall be reported as "<35" rather than "NM" for all future tests. A revised A14.5.2 is attached.

Amount of Test Oil Used for Camshaft & Lifter Lubrication

During the May 12, 2004 meeting of the Sequence III Surveillance Panel, the panel approved a motion to add a requirement on the amount of test oil used to lubricate the camshaft and lifters during engine assembly. A 118 mL (4 oz) quantity of test oil is required for this operation and any excess oil is to be poured into the engine valley after the camshaft and lifters have been installed. A new 10.28.2.1 is attached.



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Attachments

c: [ftp://ftp.astmtmc.emu.edu/docs/gas/sequenceiii/procedure\\_and\\_ils/IIIG/IL04-2.pdf](ftp://ftp.astmtmc.emu.edu/docs/gas/sequenceiii/procedure_and_ils/IIIG/IL04-2.pdf)

Distribution: Electronic Mail

10.28.2.1 Use 118 mL (4 oz) of test oil to lubricate the camshaft and lifters during engine assembly. Pour any remaining oil into the lifter valley of the engine after this process is complete.

11.8.5 *Flow*—For systems incorporating vortex-shedding measuring (liquid), use  $\pm 0.75$  percent of reading; for vortex shedding measuring (gas), use  $\pm 3.0$  percent of full scale; for magnetic measurements, use  $\pm 1.0$  percent of reading; for Coriolis measurements, use  $\pm 0.75$  percent of reading.

13.4.2.1 The undercrown area to be rated is defined as the area on the undercrown of the piston that is demarcated by casting lines on the piston itself, which resemble a common adhesive bandage. Rate only the area on the underside of the piston crown. Do not rate any parts of the inside surfaces of the piston skirts as part of the undercrown rating.

*{Sections 13.6 through 13.6.6 have been deleted}*

A14.5 *End-of-Test Used Oil Sample Testing* -Conduct a Cold-Cranking Simulator test (Test Method D5293) and a Mini Rotary Viscometer test (Test Method D4684) on the end-of-test (EOT) used oil sample with the exceptions that follow.

A14.5.1 For non reference oils run a Cold-Cranking Simulator (CCS) test (Test Method D5293) on the end-of-test (100 hour) analysis sample at the temperature specified for the test oils given viscosity grade in Table 1 of SAE J300<sup>zz</sup> Revised DEC1999. Report results on Form 6, Used Oil Analysis Results, in the standardized report form set (See A6).

zz SAE J300, Engine Oil Viscosity Classification, December 1999. {Footnote will be given an appropriate number when this section is incorporated into the Sequence IIIG Test Method.}

A14.5.2 Run the Mini Rotary Viscometer test (Test Method D4684), MRV-TP1 at grade using the SAE J300 specifications, if a passing CCS result is obtained at grade. If the CCS fails run the MRV at the same temperature as the CCS (one grade higher based on the J300). Report the end-of-test Mini Rotary Viscometer test results as MRV Temperature in °C as follows: (1) If a yield stress greater than 35 Pa is obtained at the designated temperature, report the yield stress in Pa and note the apparent viscosity as not measured (NM). (2) If a yield stress exceeding 35 Pa is not obtained at the designated temperature, report the yield stress as “<35” to indicate that the yield stress did not exceed 35 Pa. (3) Report the results in the standardized report form set (See A14).

A14.5.3 If the percent Viscosity Increase for the kinematic viscosity at EOT is higher than 500 percent increase, the CCS and MRV tests are not required. A notation is required in the Other Comments & Outlier section of Form 13 (See A6) indicating that the CCS and MRV were not run and enter not measured (NM) in the standardized report form set (See A6).

A14.5.4 If the test oil is a straight-grade oil, the Cold- Cranking Simulator and Mini -Rotary Viscometer tests are not required. A notation is required in the Other Comments & Outlier section of Form 13 (See A6) indicating that the CCS and MRV were not run and enter not measured (NM) in the standardized report form set (See A6).

A14.5.5 If required, start the MRV test within 168 hours of EOT.

A14.5.6 Upend the oil sample for MRV testing five times before starting the test.

A14.6 *Quality Index* – Calculations of quality index results for Sequence IIIGA test results shall be calculated in the same manner as Sequence IIIG test results.

A14.7 *Test Reporting* – Report Sequence IIIGA tests using the standard report form set, available from the TMC.

A14.8 *Precision & Bias* – The precision and bias of this test method for measuring Apparent Viscosity (MRV) are specified in Test Method D4684.