

December 9, 1999

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ASTM Mack Surveillance Panel Members,

Please find attached the unconfirmed minutes of the Mack Surveillance Panel meeting held on December 6 in Sparks, Nevada. Please let me know if you have any questions about the minutes.

Best Regards,

Wim van Dam.

# **UNCONFIRMED MINUTES OF THE ASTM MACK SURVEILLANCE PANEL MEETING**

**Sparks, Nevada  
December 6, 1999**

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## **1. Call to Order / Membership**

1.1. The Mack surveillance panel was called to order at 3:00 pm on December 6, 1999. The agenda is shown as attachment 1. The attendance list is shown as attachment 2. No changes in membership were reported.

## **2. Approval of Minutes from the previous meetings**

2.1. The minutes of the meeting on September 9, 1999 were approved without further comments.

## **3. Scope and Objectives (Charlie Passut, attachment 3)**

3.1. The chairman presented the scope and objectives for the Mack surveillance panel, see attachment 3. No changes were made since the last meeting in September. However, the chairman mentioned that one additional item on low temperature viscosity measurements for PC-9 might be added to the scope and objectives. This issue was discussed later during the meeting.

## **4. TMC Report (Jeff Clark, attachment 4)**

4.1. Jeff Clark gave his report over the first two months of the October 1999 to April 2000 reporting period. Two Mack T-9 reference tests have been reported and accepted. 11 Mack T-8 / T-8E tests have been run. One of these failed statistically on viscosity increase @ 3.8% soot and relative viscosity @ 4.8% soot. Four tests were aborted and the remaining 6 tests were all accepted.

4.2. At the September 1999 meeting one T-8 test was reported that was a statistical fail causing an EWMA warning limit. With the new test results that came in recently, this warning limit has been cleared.

4.3. The two Mack T-9 tests that were recently run were on target for EOT Pb-content. As a result this test cleared the warning limit for Pb-increase.

4.4. The top ring weight loss correction factor for the new top rings, which had previously been set at 34.1769 mg based on three reference test results, was updated and will become 36.9 mg. A motion that this change in correction factor would take effect per January 1, 2000 passed unanimously.

4.5. Greg Shank commented that although the ASTM surveillance panel has a correction factor for top ring weight loss, Mack uses two different pass/fail limits; one for the old and another one for the new rings. This is an inconsistency in the approach of dealing with the different piston rings.

4.6. The analysis of results from a liner wear measurement round robin, held in 1999, revealed that one participating laboratory had not correctly done the Taylor-Hobson talysurf measurements. These measurements were repeated and the data-set was re-analysed. The results of the PDI Microanalyzers were now closer to the talysurf measurements but the precision of the PDIs was not as good as the talysurf measurements. With the improved precision estimates for the talysurf devices, which are used as the "standard" for liner wear measurements, a new acceptance band for other measurement techniques was calculated. None of the PDIs would fall within the new acceptance band. However, if all data from both measurement techniques are used to calculate the target values and acceptance band, both talysurf devices and four out of the five PDIs would be calibrated.

4.7. Bob Campbell came up with a motion to use both talysurf and PDI data for the calculation of target values and, in addition, to initiate a follow-up round robin in January 2000. The motion passed with 5 for, 0 against, and 6 waives.

4.8. The Mack T-9 test procedure has been screened by Earl A. Hap Thompson who made recommendations for a number of editorial changes. These changes were unanimously accepted by the panel. The test procedure has been assigned an ASTM number; ASTM D-6483.

4.9. Greg Shank stated that Mack has decided to no longer support the Mack T-6 and Mack T-7 tests. A motion was passed to stop the surveillance of these tests within the Mack surveillance panel and to inform TMC to stop registration of these two test types. The chairman will inform Subcommittee B accordingly.

4.10. A motion to accept Jeff Clark's TMC report was accepted by the panel.

## **5. Rotational Viscosity Task Force (Attachment 5)**

5.1. Herman George gave an update on the progress of the rotational viscosity task force. This task force evaluates the viscosity by measuring shear rate and shear stress. In addition, they measure the C-value of the sample, a rate index which is a measure of the soot dispersion quality. As long as the soot-laden oil has a Newtonian character, this C-value is 1. When a sample no longer shows Newtonian behavior the C-value drops below 1.

5.2. The measurements of C-value and viscosity done by the task force give the same ranking of a series of samples as was found for kinematic viscosity measurements at 100 °C.

5.3. The plan of the task force for the next months is to do a follow-up Round Robin to investigate the impacts of temperature, sample preparation, and shear effects. This Round Robin would have to be run in January, so that laboratories that meet the precision requirements can be certified by March, 2000.

5.4. Herman asked the group if the panel wanted the rotational viscosity measurement procedure to be a separate ASTM procedure or an annex to the engine test procedure. A motion to make the rotational viscosity measurement procedure a separate ASTM procedure passed unanimously. The chairman will put in a formal request to this effect.

## **6. Low Temperature Viscosity**

6.1. The measurement of low temperature viscosity of soot containing oils is part of the proposed PC-9 specification but none of the existing engine tests requires such a measurement. The Mack T-8E engine test is an obvious candidate for this evaluation, so it was decided to add to the scope and objectives of the panel to support the development of a low temperature viscosity measurement of soot-laden oils. A motion to this effect passed unanimously.

## **7. RSI Report and Report to B.02**

7.1. Charlie Passut presented the RSI report showing the precision estimates for the T-8 / T-8E / T-9 tests based on replicate data (Attachment 6).

7.2. The status of the Mack Surveillance Panel, shown as Attachment 7, will be presented to Subcommittee B.02 by the chairman.

## **8. CPD Report**

8.1. Gary Tietze gave a short overview of the parts supply situation for the Mack T-8 and T-9. The report is shown as Attachment 8.

8.2. A motion to accept the CPD report was accepted by the panel.

## **9. Old / New Business**

9.1. Brian Lawrence brought up the issue of reference fuel and parts selection for the T-8A and T-9 tests run for CF-4 qualification. Substantial savings could be accomplished by going to RD-9 fuel or another non-reference fuel (Attachment 9). A motion to investigate this issue was accepted (7 – 0 – 3).

9.2. It was asked whether or not a Mack T-10 test in the future can be referenced in a T-8 / T-9 stand. At previous meetings it has been accepted to make this possible for the T-8 and T-9. Jeff Clark commented that the documentation for referencing multiple test types in the same stand may not have been finalised. Jeff accepted an action item to sort this out and once that has been done, the T-10 inclusion can be discussed in the future.

## **10. Next Meeting**

10.1 The next meeting will be held in February 2000. The precise date for the next meeting will be announced later.