

DD13 Surveillance Panel Teleconference Meeting Minutes

March 29, 2017

9:00 AM CST

Call Participants:

Lubrizon - Patrick Joyce, Kevin O'Malley, John Loop
Southwest Research Institute – Jose Starling, Jim McCord
Intertek - Jacob Goodale, Jim Moritz
Daimler - Suzanne Neal, Greg Braziunas
Infineum - Jim Gutzwiller, Elisa Santos, David Brass, Bob Silguero, Nancy Diggs
Oronite - Mark Cooper
TMC – Sean Moyer
TEI - Mark Sutherland, Derek Grosch

Approval of last meeting's minutes

Reports

Parts Update – Derek Grosch/Mark Sutherland

Still working with Detroit to get a bigger batch of liners in since there was an issue with some of the batched liners that were initially sent to TEI. None of these batched liners made it to any test kit, they were all sent back to Daimler and they will be restarting the process of generating a new liner batch of 2000. They will provide an update in the next meeting on where this stands. Suzanne covered a brief presentation given at a separate meeting including an update on test and parts availability (see attached).

Fuel Update – Mark Cooper

In the long term the task force will be looking into the methodology for bringing in alternative suppliers. At the moment various items have been looked at including best practices when it comes to fuel batches.

Unfinished Business

Statistics review of reference data – Kevin O'Malley/SP

The repeat reference run by Lubrizon's resulted in a 102 hours to scuff result which was still on the high end but within calibration specifications. This test was run on PNB second and oil control ring. Kevin added this test to his previous presentation to help aid in the discussion (Kevin's presentations are attached to this email).

Reference test severity – Surveillance Panel

Discussion over the shift in test severity and how it should be handled took place. It was discussed that the oil control ring part number had changed around kit #339, but TEI was not for certain when. However, when it was known that the oil control ring part number had changed TEI measured 100 of the old and new oil control rings and the difference in tension was at or under 1 Nm. According to DDC this is a production change to a "softer but longer spring" that sits better in body. It was unknown if any of the recent reference test were run using this new oil control ring part number (changed from A4710818001 to A4711118001) so labs will be looking at EOT parts for those tests to find out.

The new batch of pistons (batch A) and second/oil control ring (also batch A) will be/were brought in as a rolling change starting with kit #373. These will be utilized with batch B top rings which were introduced starting with kit #311. Discussion took place on how the new batched items should be

recorded in the test report since they were previously production non batch parts. Currently we have a piston and top ring batch ID in the test report, but it was decided a liner, second ring and oil control ring batch ID field was needed as well in the report. **Mark Cooper made the motion to add a data dictionary field for batch ID on the second ring, oil control ring and liner. This motion was seconded by Jacob Goodale.** All parties voted in favor of the motion. The motion passed.

Statistics review of stylus difference – Kevin O'Malley/SP

Kevin presented a statistics review of the liner surface roughness measurements taken up to date utilizing both the 0.0002" stylus that Daimler uses and set its specifications with along with measurements from the smaller 0.0001" stylus that was used for this test so far. The presentation of this discussion is attached with details on possible paths forwards in terms of the stylus measurements.

Once the liner specifications for the DD13 scuffing test have been selected by the group, TEI will also need to know if the specification should be applied to an individual measurement or on the average of the four measurements taken. Most involved would prefer that the specification be compared against the average of the four measurements and not to each individual measurement. TEI would like to move to the use of one stylus as soon as possible. It was decided previously that the smaller stylus should be used, however TEI will continue to use both styluses until sufficient data is available to insure a proper correlation between styluses is conducted.

Kevin completed a review of liner measurements using both styluses with the objective being to determine if a correlation exists which can be utilized to finalize liner specifications for the smaller stylus. A correlation or adjustment to the Daimler specification needs to be made so that the use of the smaller stylus doesn't impact the rejection rate. TEI will continue to use both size stylus to complete liner measurements and once the new batch of liners is available at least 150 of the new batch of 2,000 liners should also be measured using both styluses.

Tentively the specification for the smaller stylus should be as follows: **Rvk=0.6 to 1.9, Rk=0.35 to 0.95** and **Rpk=0.23 Max**. These specifications should be used for preliminary rejection rate analysis. This analysis will be conducted by Kevin but dependent on when batched liners from Daimler and measurements from TEI are available.

Discussion also took place on how to move forward with running coordinated reference runs to help identify the issue or the possibility of waiting till the new hardware (new batch of liners) was available. It was decided that this topic would be continued next week pending a few action items. All the labs are to verify via part number on the oil control ring which ring was run to insure this was not the cause of a shift in severity.

The following agenda items were not discussed and will be moved to the next meeting.

- Piston Ring Batch Consistency Analysis – Mark Cooper
- Clarification of ASTM Procedure Changes – Sean Moyer
- ASTM Procedure Correction – Jacob Goodale
- Build Workshop Dates – Patrick Joyce

Next Meeting

Next meeting is scheduled for April 13, 2017 at 11:00 AM CST.