

Cummins Surveillance Panel Meeting Minutes

June 8, 2023 14:00-16:00 CST

Participants:

Afton – Bob Campbell, Joseph Hoehn

Chevron Oronite – Josephine Martinez

Cummins – Phillip Shelton, Ryan Denton

ExxonMobil – Steve Jetter

Infineum – Elisa Santos, James Gutzwiller, David Brass

Intertek – Andrew Smith (Chairman)

Lubrizol – Robert Slocum, Austin Brininger, Jonathan Bolaney

SwRI – Joe Moore, Jose Starling, Bob Warden, Travis Kostan

TEI – Dan Lanctot

TMC – Sean Moyer

Agenda:

Presentation of new batch hardware data and discussion the reference data on the new Batch N camshafts for the ISB.

Discussion on low viscosity ISM reference oil if time allows, otherwise another meeting will be scheduled before ASTM Denver.

New Hardware Discussion:

- Review of Statistician Panel analysis
 - Elisa Santos presenting.
 - Stats group proposes:
 - Introduce camshaft CF of 0.88 or leave as is and reevaluate when more data is available.
 - Introduce tappet CF of 0.92 or leave as is and reevaluate when more data is available.
 - Panel consensus on camshafts was that since all 5 N/G/F tests fall within the spread of the 11 M/F/F tests, the current camshaft CF is appropriate for now and will be re-evaluated once more reference data is available. The stand severity adjustments will account for the hardware difference in the meantime.

- It was brought up that the proposed CF of 0.88 is closer to the original target than the current CF of 0.77, meaning the CF will be less impactful on testing.
- Panel consensus on tappets was that the N/G/F tests agree with M/F/F tests, though as the tappet wear is currently an action alarm for being too mild, a new CF is necessary. Applying the proposed tappet CF of 0.92 to both N/G/F and M/F/F would bring the LTMS data back towards the target.

Motion: Carry the camshaft correction of 0.77 forward to N/G/F hardware and re-evaluate the correction factor after 10 test on N/G/F hardware. Change the correction factor for tappets to 0.92 for N/G/F and M/F/F hardware.

Andrew Smith motions, Jose Starling seconds.

No negatives, no waivers. Motion passes unanimously.

Motion: Stands should be calibrated on N/G/F hardware before running candidates on N/G/F hardware. These stands may be referenced with no net gain or loss. Stands may not be referenced on old hardware combinations.

Andrew Smith motions, Jose Starling seconds.

No negatives, no waivers. Motion passes unanimously.

PC-12 Low Viscosity Reference Oil Discussion:

- Presentation of potential reference oils
 - David Brass presenting.
 - New reference oil must be an XW-20 oil compliant with new lower limits on P, S and SASH percentages.
 - Supplier 1 is offering a single oil for both ISB and ISM tests. The supplier has shared test data from similar blends with no more than 1% formulation variability.
 - The panel was generally concerned that the ISB results had high variability and performed better than the desired borderline performance.
 - Supplier 3 is offering an oil for the ISB test.
- Matrix Schedule discussion
 - The reference oil task force has decided on a minimum of an 8-test matrix for both the ISB and ISM.
 - The matrices are designed for 4 stands, preferably over 4 labs but open to multiple stands at a lab. Previous industry polling indicated that all labs were willing to participate but this may have changed.
 - The task force has planned for 4 tests to be lab funded, likely as references, and 4 tests to be funded externally or through lab donated testing.

- Matrix testing will need to begin this calendar year to allow time for BOI/VGRA, the estimated time for matrix testing is 6 months.
 - There is concern that the ISB matrix will be delayed due to labs not needing to reference during the proposed matrix time frame. Most labs will not need to reference ISB stands until June 2024 due to the panels' motions in this meeting.
 - The ISM matrix was planned to start immediately due to lab's having unreferenced stands. However, most of those stands have been referenced or are in the process of referencing at the time of this meeting.
 - Scheduling and funding options for both matrices will need to be discussed further once reference oils have been chosen and approved.
- There will be another reference oil matrix for the ISB Viscosity test, this was not discussed in depth as the test procedure is currently being developed.
 - The panel will likely be overseeing this test as it runs on the same platform as the ISB wear test.

Next Steps:

- Once 10 tests on N/G/F hardware have been run, Andrew Smith will schedule another meeting to review the data for both camshaft and tappets.
- David Brass will ask the potential suppliers about running the proposed reference oils and sharing the data with the panel.
- Sean Moyer will contact the labs about matrix participation and the potential of donated tests.

Next Meeting: TBD