Cummins Surveillance Panel Teleconference
October 19, 2022 10:00 – 12:00 EDT

Attendance:

Sean Moyer - TMC
Justin Wolfe- Lubrizol
Joseph Hoehn - Afton
Jose Starling, Joe Moore, Bob Warden- SwRI
Andrew Smith - Intertek
Dan Lanctot - TEI
Phil Shelton, Wei Qin - Cummins
Elisa Santos, David Brass - Infineum
Steve Jetter – ExxonMobil
David Lee – Oronite

Agenda:

1) Cummins Tests low hths oil testing capability
    a. NCDT has asked the panel wether ISB and ISM tests would be capable of running low HTHS viscosity oil testing.
    b. Andrew reviewed the NCDT survey questions and the panel came to consensus answers to the survey questions. The completed survey is included at the end of these minutes.
2) Highlights from Matrix Design Taskforce with regards to ISM and ISB
    a. ACC and EMA generally aligned for low viscosity testing being the highest priority for the wear tests including the ISB and ISM
    b. 5W-20 Oil is a high priority for inclusion for both ISB and ISM
    c. Most want to maintain the current reference oils and add a second reference oil at xW-20 viscosity grade
    d. How many tests necessary to introduce a new reference oil?
3) Updating the procedure for hardware batch correction factors
    a. Sean Moyer motioned that the panel directs the TMC to update the procedure to capture the current correction factors for the ISB. Andrew Smith seconded the motion. Sean will send the final wording to the panel for review.
    b. David Brass asked about the current hardware batch longevity. There are currently 27 camshafts remaining and Cummins has begun the discussion with their supplier to procure a new batch of camshafts.
4) Turbocharger supply update:
    a. The turbocharger's used for ISB testing are currently not available
    b. Cummins supplier: Not a high-volume item so not on radar as a field issue
    c. All labs have indicated low or no new supply
    d. No estimation for turbocharger's being re-stocked
    e. Working with Cummins on a solution, as this could impact the ability of labs to run tests

Meeting adjourned at 11:20 EDT.

- Low Viscosity Survey Questions for NCDT
    - NCDT is targeting expanding the lower limit of viscosity to include xW-20 grades with HTHS as low as 2.6 cP for PC-12
- Required Feedback:
    - Is the test capable of running to completion on low viscosity oils?
        - Yes
    - Would low viscosity oils be expected to contribute to a higher-than-normal rate of invalid/uninterpretable tests?
        - The panel would not expect a significant increase to invalid or uninterpretable tests, but with the limited data set there is an indication that this needs to be monitored
    - Would low viscosity oils require any modification to the procedure with respect to either hardware or test cycle?
        - The panel does not believe any procedure or hardware changes would need to be made
    - Would low viscosity testing contribute to an increase in consumption of test parts compared to high viscosity testing?
        - The panel speculates there may be an increase in usage of ISB engine hardware because the lower end of the engine is not replaced from test to test (bearings, rods, etc.). There may be an over time effect of low HTHS that decreases engine life since these are not replaced. ISM does get engine rebuilds, so we do not believe the ISM will be as affected in this regard. Parts that are not replaced from test to test will have to be monitored by labs to determine if hardware life is affected.
    - What level of prove-out testing would the SP recommend to provide confidence in running the test at low viscosity?
        - The panel does not need to see additional prove-out testing to change our confidence in the test's ability to run at low viscosity, however we will monitor hardware usage as described in the above questions.
    - Does the test sponsor support the capability of the test running on low viscosity?

        - Cummins does not have the ability to answer the question about the capability of the engine to handle low viscosity fluids, however, are in support of using the engines to validate lower viscosity fluids.
    - Any additional comments or suggestions for proceeding with evaluating low viscosity capability.
        - There has been an inclination for the need of a low viscosity reference oil in addition to maintaining the current reference oil. The panel will continue to discuss how the addition of a new low viscosity reference oil will impact the LTMS, as 2 reference oils limit the data further.