

# Daimler Surveillance Panel Meeting Minutes

September 23, 2020

12:15 PM – 1:45 PM CST

## Call Participants:

Lubrizol - Andrew Stevens (Chairman), Kris Meekins  
Southwest Research Institute – Jose Starling (Secretary), Travis Kostan, Robert Warden  
Intertek – Josh Ward  
Daimler - Suzanne Neal  
Afton –Bob Campbell  
Infineum - David Brass, Elisa Santos, James Gutzwiller  
TEI – Derek Grosch  
TMC – Sean Moyer  
Haltermann Solutions – Prasad Tumati

## Agenda Items

### **Alternative Fuel Requirements Discussion (Continued from last meeting) – Surveillance Panel**

Operational data plots from SwRI tests were presented which showed reference test data and subsequent tests both on the same engine and different engine. These data plots are attached to these meeting minutes. **Action Item:** Intertek to provide similar data set for their testing to SwRI so that both can be plotted alongside each other for comparison and review in next meeting.

Travis and Elisa looked into the Oil D tests that had been conducted previously. It was found that out of the 6 Oil D tests run only 2 of them were considered valid. One from Lubrizol and one from Intertek. The statisticians concluded that based on two tests it would be difficult to establish any significant statistics for Oil D based on just two tests. Document presented by Travis is attached to these meeting minutes.

Travis and Elisa's recommendation based on the data set is that one standard calibration test be conducted on the current reference oil and fuel. After a successful reference test, two tests on the alternative fuel should be conducted. The first alternative fuel test would be conducted on the current reference oil and achieve a result between 30 to 50 hours to scuff. While reference results show that tests can scuff significantly higher than that a lower scuff result is typically expected. The second alternative fuel test would be conducted on Oil D which must complete 200 hours without scuffing.

David Brass asked what would occur if the initial reference test showed to be on the milder range or if the reference test itself should also be limited to the same 30 to 50 hours scuff value. It was agreed that the reference test probably doesn't need to be altered since the current fuel is not the one in question. However, it would be in the best interest of the alternative fuel supplier to not select a stand/lab that achieved mild results during their stand/lab selection process.

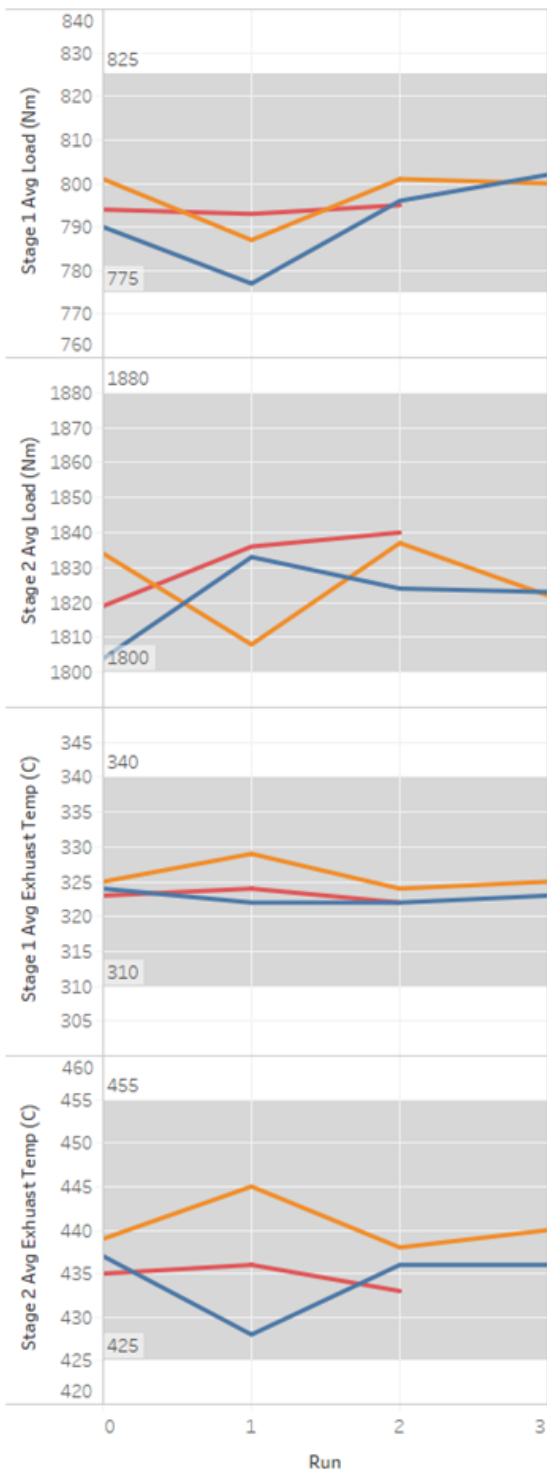
It was asked if the panel should also establish subsequent path forward if the alternative fuel tests did not meet the mentioned requirements. It was agreed that if this were to occur any possible paths forward would need to be based on the results from the alternative fuel tests. **Action Item:** Travis volunteered to start working on writing up the suggested DD13 Alternative Fuel Supplier proposal.

**Next Meeting:** Next meeting date is expected early October. Andrew will send out a meeting invitation.

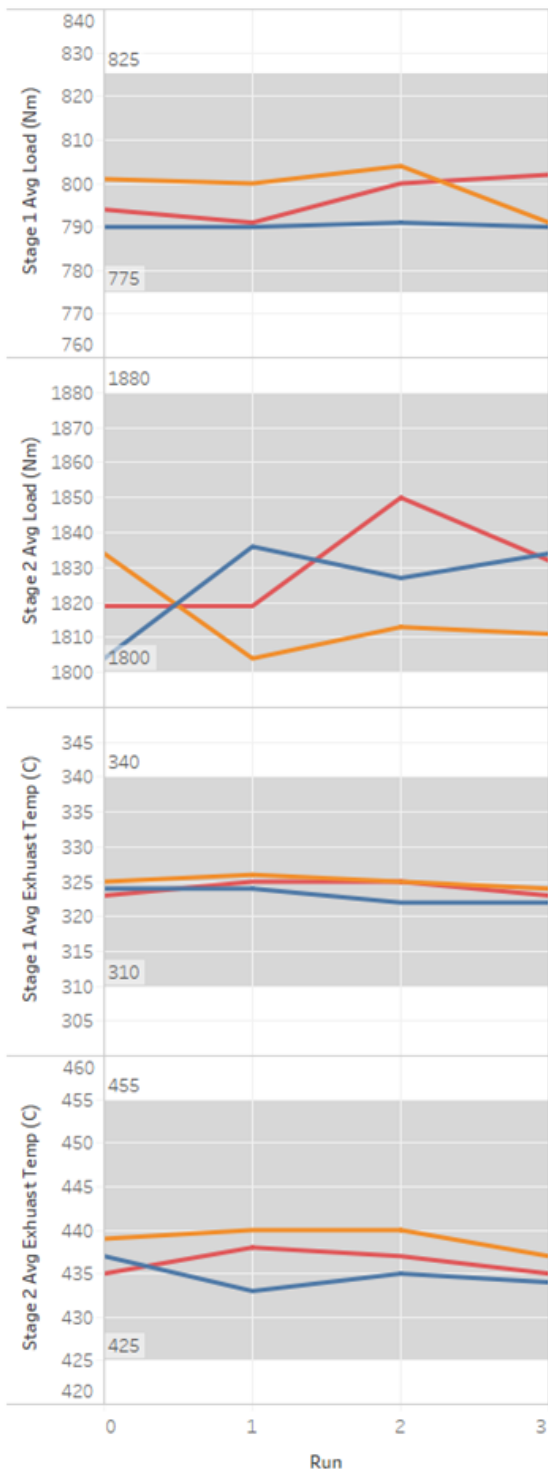
# SWRI REFERENCE & SUBSEQUENT CANDIDATE TEST SHOWN WITH SUGGESTED OPERATIONAL RANGES

## DD13 Scuffing Test - References and Candidates After Comparison

Reference and Same Engine



Reference and Different Engine

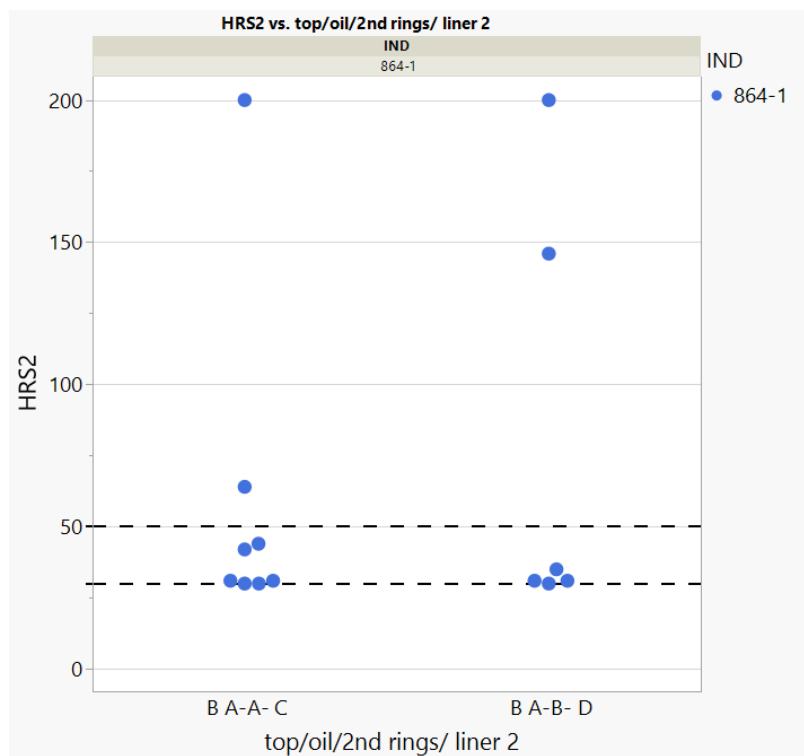


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## DD13 Alternate Fuel Acceptance Testing

- Single test stand
- Conduct 1 calibration test using oil 864-1.
  - Test must meet all LTMS calibration acceptance requirements.
- Conduct 2 tests on the alternate fuel, one with oil 864-1 and one with oil D.
  - For the test on Oil 864-1, the test result should be between 30.0 and 50.0 hours.
  - For the test on Oil D, the test must go the full length of 200 hours with no scuffing.



### Unconfirmed Oil D Results

Lab	Result	Considered Valid
Lubrizol	146.5	No
Lubrizol	200	Yes
Intertek	200	Yes
Intertek	175.6	No
SwRI	200	No
SwRI	200	No

**Note:** Because of the variability in the test results seen above for 864-1, detecting small to moderate differences between the fuels will be extremely difficult. We cannot guarantee that a new supplier will not directionally shift results slightly more severe or slightly milder. Even though there is a chance that the current fuel would not pass these tighter windows, the goal here is more to prove that the test can separate fluids with the candidate fuel rather than to statistically compare the fuels to each other.

- Both tests must also meet the following operational criteria:
  - Average stage 1 torque should be  $800 \pm 25$  Nm
  - Average stage 2 torque should be  $1840 \pm 40$  Nm
  - Average stage 1 exhaust pipe temp should be  $325 \pm 15^\circ\text{C}$
  - Average stage 2 exhaust pipe temp should be  $440 \pm 15^\circ\text{C}$
  - Tests must be operationally valid with no negative QIs

