

# MACK-Volvo Surveillance Panel Meeting Notes

## 10/06/2022 @ 2:00 PM EST

### Attendees

SwRI: Travis Kostan, Robert Warden, Isaac Leer

Oronite: Josephine Martinez

Afton: Joseph Hoehn, Amanda Stone, Cory Koglin, Bob Campbell

Infineum: David Brass (Chair), Jacob Goodale, Elisa Santos

Intertek: Garrett White (Secretary), Juan Vega, Khaled Elnagi

Exxon Mobil: Paul Rubas, Steve Jetter

TMC: Sean Moyer

TEI: Derek Grosch

Ford: Mike Deegan

### Agenda

- 1) Volvo T-13 Reference Oil 823-1 Introduction
- 2) Volvo T-13 Liner Batch D Introduction
- 3) Low Viscosity Oil Testing in T-13
- 4) MACK T-11 / T-12 Parts

### *Action Items and Key Points*

- T13 coordinated references on the new reference oil 823-1 to be begin by the start of April 2023 and will utilize batch C liner kits.
- TEI will set aside 4 kits containing batch C liners for the T13 coordinated references on oil 823-1.
- There are currently 13 T13 kits containing batch C liners remaining.
- T13 batch D liners will be placed in kits once the batch C liners runout. The liners will be introduced as a rolling change and labs will not be required to conduct a reference on them before use in candidate testing.
- T-12 kit count is currently 22 and T-11 kit count is currently 4. T-12 referencing on the next batches of hardware to begin around the June-July 2023 timeframe. This will include top ring Y, 2nd ring Y, oil ring Y, piston crown F (subgroup TBD but will exclude subgroup A), connecting rod bearing Z, main bearing Q, liner W, and piston skirt B.

## Summary of Discussion

### **Mack T-13 823-1 Referencing**

TMC confirmed there is currently 1 drum of reference oil 823 at each of the labs

TMC has 1 drum of 823 at their facility being saved as a reserve for any future chemistry analysis

TMC received 29 drums of 823-1

TMC-EC minutes from 6/21/2021 stated that 823-1 was available.

There are currently 3 active stands referenced on 823

Lab A and G are currently conducting references on 823

**David Brass motions that active labs begin a reference on 823-1 by the beginning of April 2023. TMC shall adjust the reference periods in order to have no net gain or loss of reference period time. These references are to utilize batch C liner kits in all tests.**

Infineum: Yes

Afton: Yes

Oronite: Yes

SwRI: Yes

Intertek: Yes

TEI: Yes

TMC: Waive

Exxon Mobil: Yes

Ford: Waive

Lubrizol: No answer

Volvo: No answer

Vote count: Yes (7), No (0), Waive (2), No Answer (2)

### ***Motion carried***

David will follow up with Lubrizol and Volvo after the meeting regarding any concerns they may have for this motion.

### Volvo T-13 Liner Batch D Introduction

TEI confirmed there are 13 kits containing Batch C liners remaining

Batch D liners to be brought in soon

Proposal is to bring in Batch D as a rolling change and use level 2 Ei limits (Batch C were brought in as a rolling change previously)

David Brass shared liner surface measurements comparing all liner batches used in the T-13 thus far. Batch D appears to be within the range of batch C on all parameters.

Parameters such as Rpk, Rvk, Vo slightly higher than Batch B

David – Can 3-4 kits with C liners be set aside for the coordinated references to bring in the new reference oil 823-1?

Derek – Yes, we can do that

Sean M – Last bullet stating the use of level 2 Ei limits doesn't make sense if we are making this a rolling change in the middle of candidate testing.

The earlier motion for referencing on the new 823-1 T-13 reference oil was modified to include a note that these tests are to run with Batch C liner kits. TEI will set aside kits to ensure labs have hardware to run.

**Bob Warden motions to treat Batch D liners as a rolling change as they arrive in kits and do not need to be brought in on a reference test.**

*Jacob Goodale – Seconded motion*

Infineum – Yes

Afton – Yes

Oronite – Waive

SwRI – Yes

Intertek – Yes

TEI – Yes

TMC – Yes

ExxonMobil - Yes

Ford – No answer

Lubrizol – No answer

Volvo – No answer

Vote count: Yes (7), No (0), Waive (1), No Answer (3)

### ***Motion carried***

David will follow up with Volvo and Lubrizol after the meeting regarding any concerns they may have for this motion.

### **Volvo T-13 Low viscosity testing**

Survey went out to NCDT members to collect data on tests run on oils with HTHS results down to 2.6 cP

NCDT asked the surveillance panel if the data collected is enough to determine that the T-13 is capable of running oils with this low of viscosity

For the T13 a total of 27 data points were received

Oils between 2.6-2.9 cP: Pass (12), Fail (4), Invalid (3), N/A (3)

Oils less than 2.6 cP: Pass (0), Fail (2), Invalid (0), N/A (0)

The reason for the 3 invalid tests were:

Invalid test 1 was stopped early due to excessive oxidation

Invalid test 2 had an intake valve failure not caused by the oil

Invalid test 3 ended early with no comment in report

David answered a list of NCDT questions and reviewed them with the SP for final approval

- Question 1: Is the test capable of running to completion on low viscosity oils? **Yes**
- Question 2: Would low viscosity oils be expected to contribute to a higher than normal rate of invalid/uninterpretable tests? **No**
- Question 3: Would low viscosity oils contribute to an increase in consumption of test parts compared to high viscosity testing? **No**
- Question 4: What level of prove-out testing would the SP recommend to provide confidence in running the test at low viscosity? **Enough testing has already completed, through experience provided**
- Question 5: Does the test sponsor support the capability of the test running on low viscosity [oils]? **Awaiting response from test sponsor**
- Question 6: Any additional comments or suggestions for proceeding with evaluating low viscosity capability **None**

No objections to the answers above were made

## Mack T-11 and T-12 Parts

Currently low on parts for both T-11 and T-12 kits.

T-11 limiting part are the piston crowns (currently E batch). Total of 4 kits remaining at TEI.

T-12 limiting part is the second ring (currently on batch X). Total of 22 kits remaining at TEI.

Will need to bring in the next batch of parts soon

TEI was able to locate similar date codes for 2<sup>nd</sup> rings, rod bearings, main bearings. The date codes will serve as a way of “batching” these parts.

The current kit count using the date code method of batching is roughly 298, with the piston crowns being the limiting factor.

Current purchase rate of T-12 kits is 50-60 kits a year. With this consumption rate in mind this is roughly 5-6 years of parts left at TEI for the T-8, T-11 and T-12

David - Is there enough current hardware to handle the remainder of testing from now until middle of next year when all 3 active labs need to re-reference?

Derek – When would those references begin?

David – As soon as labs come off of reference. (June-July 2023 timeframe)

Derek – 22 T-12 kits remain, we have sold 22 in just the last 8 months. This would mean we would run out around April 2023 if the rate continues.

Garrett – What is the time frame for start or finish of the references?

Bob C – It would be good for labs review their inventories. Afton will do this before committing to a time frame. But we do agree the next references need to be performed on the next batch of hardware

**David Brass motions that the next references for T-12 will be done on the new batch of parts at all active labs. Timeframe of completion is to be determined at a later date. The batch of parts to be used for these tests will include top ring Y, 2<sup>nd</sup> ring Y, oil ring Y, piston crown F (subgroup TBD but will exclude subgroup A), connecting rod bearing Z, main bearing Q, liner W, and piston skirt B.**

*Bob Campbell – Seconded motion*

ExxonMobil – Yes

Ford – Yes

TMC – Yes

TEI – Yes

Intertek – Yes

SwRI – Yes

Oronite – Yes

Afton – Yes

Infineum – Yes

Lubrizol – No Answer

Volvo – No Answer

Vote count: Yes (9), No (0), Waive (1), No Answer (3)

***Motion carried***

David – We will revisit the discussion of the subgroup of crowns to be used and when we plan to begin the references at a later time.

David - Any labs that begin to run low on parts need to inform the SP and we will visit the topic of running the references sooner rather than later. Expect to begin references in the June timeframe when the first active stand will expire.

**Other Business**

The surveillance panel voiced concerns about the lack of presence from Volvo

David to follow up with Volvo regarding the concern

**Next Meeting Date/Time**

Meeting adjourned 3:22 PM EST

Next meeting time/date was not set