

Daimler Surveillance Panel Meeting Minutes

June 2, 2021

1:00 PM – 2:00 PM CST

Call Participants:

Lubrizol - Andrew Stevens (Chairman)

Southwest Research Institute – Jose Starling (Secretary), Travis Kostan, Robert Warden

Intertek – Josh Ward, Martin Chadwick

Daimler - Suzanne Neal

Afton – Christian Porter

Infineum - David Brass, Elisa Santos

TEI – Derek Grosch

Chevron Oronite – David Lee, Josephine Martinez

TMC – Sean Moyer

Haltermann Solutions – Prasad Tumati

ExxonMobil – Ashley Montufar

Agenda Items

Andrew Stevens made the motion to approve the meeting minutes from the October 8th meeting. Jose Starling seconded the motion. No comments on the motion. The motion carried.

New Parts Batch Discussion – Surveillance Panel

TEI provided an update on the hardware status for the DD13 scuff test (see attached presentation). TEI is currently out of current batch of pistons and oil rings/top rings. New batch of top and oil rings are already available at TEI, but still waiting on the new batch of pistons. Pistons are expected to be delivered to TEI early July 2021.

TEI performed some comparative measurements on the new batch top rings compared to the previous batch. The ring tension was slightly higher but all else appeared relatively close. This was conducted on 108 top rings for both new and current batch to acquire the overall average. A summary of this comparative data is also included in the attached presentation. The first kit with the new batch of hardware will be 677 as noted by TEI. The new batch of hardware that is introduced will be Batch C top rings, Batch B oil rings and Batch B pistons.

It was asked if the delay in piston availability will cause any testing issues at the labs. Josh Ward at Intertek stated he would be out of kits before the coordinated references could take place. It was asked if the labs could check their inventory and see if any lab has spare kits to share with Intertek during this time period. It was asked if this new batch of hardware could be introduced as a rolling change using the level 2 alarm. Josh mentioned this would allow minimal impacts to all the other labs who still have hardware and also be able to continue running themselves. Martin Chadwick stated that this is exactly what this level 2 alarm was set in place for so that there wouldn't be an issue or stoppage in reference/candidate testing at one lab due to delays at another lab. It was stated that all the new batched hardware would be introduced together so references on it would be pending the new batch piston arrival.

Josh Ward made the motion to introduce the new batch of hardware including the new Batch C top rings, Batch B piston and Batch B oil rings as a rolling change using the level 2 alarm limits. Andrew Stevens of Lubrizol seconded the motion. No waives or negatives presented. The motion carried.

Walk-in Topics: Suzanne Neal mentioned that in some of the discussion for PC-12 it was asked how long in the future hardware would be available for the DD13. Suzanne shared her findings with this group and stated that they don't expect any parts issues or major changes until at least 2035. Up to this point Daimler should be able to continue to provide hardware for the test until that point and perhaps further but difficult to predict past that point. If there are any changes to this expected date then

Meeting was adjourned at 1:27 PM CST.

Next Meeting: Pending



DD-13 CPD Report

DD-13 CPD Report Contents

- Issues/Updates/Observations
 - Batched Parts Inventory
 - New Parts Batches
 - New Ring Measurement Comparisons



DD-13

Batched Parts Inventory

Part	Batch	Quantity
Top Ring	B	120
	C*	2500
2nd Ring	B	2198
Oil Ring	A	12
	B*	2500
Piston	A	0
	B*	0
		* - New Batch



DD-13 New Parts Batches Ordering

- New batches of top rings, 2nd rings and pistons were ordered on 1/8/21 with a 16 week lead time from Federal Mogul (4/30 ETA).
- The top rings and oil rings were received on 4/26.
- The pistons are expected to be shipped on 6/25.



DD-13

New Parts Batches Ordering

Part	Order Date	Lead Time	Expected Ship Date	Received Date
Top Ring	1/8/2021	16 Weeks	4/30/2021	4/26/2021
Oil Ring				
Piston				Not Yet Received (FM estimated ship date is 6/25)



DD-13 Top Ring Batch Comparisons

- 108 top rings from the “B” and “C” batches were used for comparison

Top Ring Average Comparison				
Measurement		B Average	C Average	Abs. Diff
	Tension (N)	27.80	31.35	3.55
	Gap (mm)	0.39	0.43	0.04
	Face Width (mm)	3.09	3.14	0.05
Peak Height (μm)		0.40	0.39	0.01
	Location (mm)	0.56	0.52	0.03
	to 0.2 mm Diff (μm)	1.63	1.95	0.32
	to 2.75 mm Diff (μm)	32.39	32.76	0.37
	Ra (μm)	0.16	0.20	0.04
	Rk (μm)	0.31	0.37	0.06
	Rmr1 (%)	8.82	9.05	0.23
	Rmr2 (%)	83.57	82.62	0.95
	Rpk (μm)	0.11	0.13	0.01
	Rvk (μm)	0.90	0.96	0.06
	Vo ($(\mu\text{m}*\mu\text{m})/\mu\text{m}$)	0.07	0.09	0.01
	Rz (μm)	0.96	1.35	0.38
	Ring thickness (front to rear) (mm)	4.65	4.68	0.03



DD-13 Oil Ring Batch Comparisons

- 108 oil rings from the “A” and “B” batches were used for comparison

Oil Ring Average Comparison			
Measurement	A Average	B Average	Abs. Diff
Tension (N)	44.37	44.89	0.52
Gap (mm)	0.52	0.50	0.02
Gap Between Rails (mm)	2.11	2.12	0.01
Ring Width (outside to outside of rails) (mm)	2.30	2.28	0.02
Top Rail Width (mm)	0.10	0.08	0.02
Bottom Rail Width (mm)	0.09	0.08	0.01
Rail Height Differential (μm)	1.25	1.22	0.03



Questions ?

