

Minutes of the Sequence VIF Task Force teleconference call

September 30, 2015 08:00 CDT

The sixth meeting of the Sequence VIF Task Force was called to order by Chairman Dan Worcester. Dan was requested to open the meeting by reading the ASTM Anti-Trust policy. A link to that policy follows.

http://meetingsprod.astm.org/documents/Regs_Section19.pdf

The meeting Agenda is included as Attachment 1. The attendance roster is included as Attachment 2.

The minutes from the September 23, 2015 meeting were approved as written and are available on the ASTM-TMC web site. <ftp://ftp.astmtmc.cmu.edu/docs/gas/sequencevi/minutes/VIFTaskForceMinutes20150923.pdf>

Rich Grundza reported that Toyota VID Matrix oil 400, now designated ASTM 543 is undergoing analytical testing and he anticipates it will be shipped to the labs within the next week or two.

Engines/stands are being readied at both SRI and IAR. **Action Item #1** IAR and SRI (Buscher & Worcester) will put together a time line showing potential starting dates for the Sense Check testing and present it to the Task Force at the next meeting. Sense Check testing will be run at one stand at each of the labs and those stands will continue to matrix testing if the initial four tests run on those stands are deemed satisfactory.

David Glaenzer expressed concern that we have not done anything relative to engine life when testing low viscosity oils. Attachment 3 summarizes his concerns.

Hiranosan presented a study of Sequence VIB and VID Engine Aging and Engine Life. It is included as Attachment 4. The Task Force discussed what can be monitored during aging that may indicate change in engine life. Oil samples are being considered. The Task Force agreed to re-visit the subject at the next meeting after members have had time to consider possibilities. **Action Item #2** Labs are to review their VID & VIE data to see if there is any indication of degradation of engine or oil consumption following OW-16 or lighter oil testing.

Chairman Worcester informed the group that the Task Force would have a face-to-face meeting in the Detroit area on October 27, 2015. The next teleconference will be October 7 at 08:00 CDT.

Having no further business, the meeting was adjourned.

Respectfully submitted,

David L. Glaenzer, Afton Chemical Corporation

GF-6B Sequence VIF Task Force

Toll-free dial-in number (U.S. and Canada):

(866) 588-1857

International dial-in number:

(678) 373-4882

Conference code:

2894131

Scope

The ASTM Sequence VI Surveillance Panel requested a Task Force be formed to determine if the Sequence VIE could be used for 0W 16 oils. The TF will look at development of the VIF test using 100 °C oil temperature and 94 °C coolant temperature for stages 1, 3, 4, and 6.

Objective

Review the Toyota proposal attached and work on selection of reference oils, stands to support testing, and running the Sense Check and test matrices.

The agenda for this meeting is shown below, if you have any additions please send them to me and Cc this distribution.

- 1.0 Chairman's Comments
- 2.0 Roll Call
- 3.0 Approval of Minutes from Meeting 09.23.2015
<ftp://ftp.astmtmc.cmu.edu/docs/gas/sequencevi/minutes/VIFTaskForceMinutes20150923.pdf>
- 4.0 Oil 400 is at TMC and will be tested then shipped to labs.
- 5.0 The matrix for VIF testing has been chosen. IAR and SwRI will need to have engines available to run the Sense Check portion.
- 6.0 Next call October 07, 2015 at 8:00 AM Central Time.

Name	Affiliation
Adrian Alfonso	Intertek
Amol C Savant	Ashland
Andrew Ritchie	Infineum
Charlie Leverett	Intertek
Chris Castanien	Nesteoil
Cliff Salvensen	ExxonMobil
Cole Hudson	SwRI
Dan Worcester Jr.	Chairman, SwRI
David Glaenger	Secretary, Afton Chemical
Denny Gaal	ExxonMobil
Doyle Boese	Infineum
Eric Liu	SwRI
Gordon Farnsworth	Infineum
Guy Stubs	SwRI
Jason Bowden	OH Technologies
Jim Linden	Toyota
Jo Martinez	Chevron
Kaustav Sinha	Chevron
Kevin OMalley	Lubrizol
Mark Adams	Tribology Testing
Mark Mosher	ExxonMobil
Martin Chadwick	Intertek
Matthew Bowden	OH Technologies
Michael Conrad	Lubrizol
Mike McMillan	Infineum
Nathaniel Moles	Lubrizol
Patrick Lang	SwRI
Ray Burn	ExxonMobil
Rich Grundza	ASTM Test Monitoring
Robert Stockwell	Oronite
Ron Romano	Ford Motor Company
Satoshi Hirano	Toyota
Teri Kowalski	Toyota
Timothy Cushing	General Motors
Todd Dvorak	Afton Chemical
Tracy King	Haltermann
Valerie Lieu	Chevron
William Buscher	Intertek
Bob Campbell	Afton
Mike Ragomo	ExxonMobil
Travis Kotan	SwRI

08/27/15 Vote on Option#3		09/02/15 Vote on Alt.Sense		09/09/15		09/23/15		09/30/15	
P	Y			P		P		P	
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				P					
								P	

Glaenger, Dave

From: Glaenger, Dave
Sent: Tuesday, September 29, 2015 2:56 PM
To: 'Worcester Jr, Dan E.'; Michael.Warholic@infineum.com; Mark Adams; Chris Castanien; Sinha, Kaustav; Conrad, Michael; Amol C Savant; Intertek Automotive, Leverett, Charlie; Ford, Romano, Ron; Martinez, Jo G. (jogm); (timothy.cushing@gm.com); doyle.boese@infineum.com; jhbowden@ohtech.com; William Buscher Intertek; SATOSHI HIRANO; gordon.farnsworth@infineum.com; Moles, Nathaniel; Lieu, Valerie H; 'Mark Mosher'; Andrew.Ritchie@Infineum.com; Teri Kowalski (TEMA TTC); Robert.Stockwell@chevron.com; Lang, Patrick M.; Jim Linden; Kaustav Sinha; King, Tracey; Matthew Bowden; Adrian Alfonso Intertek; Kevin OMalley; mmcmillan123@comcast.net; Martin Chadwick Intertek; Liu, Eric; Rich Grundza; Dvorak, Todd; Kostan, Travis G.
Cc: Hoffman, Terry; Campbell, Bob
Subject: RE: VIF TASK FORCE MEETING

Colleagues

In Dan's agenda attached to the meeting notice, he solicited any additional agenda items and asked that such be distributed to the mailing list.

At Afton's lab, we continue to have concerns about potential engine life with the low viscosity oils. We have lowered both engine coolant and oil gallery temperatures by 15° C for the evaluation Stages 1, 3, 4 & 6. We have not considered adjusting the aging oil temperature.

I know it is late in the game and we are near the start of "Sense Check" runs, but we have done very little, if anything, to lessen the impact of the low viscosity oils on engine life. Aging the oil at 120° C is widely believed to be a major contributor in short engine life with OW-16 and lighter oils in the Sequence VIE test. I understand aging for 125 hours brings about some level of oil degradation and represents several thousand miles of real world operation; however, the Sequence VIF will not have correlation to field data and as such needn't be subjected to such adverse conditions. The VIF "should" separate the oils selected for the Sense Check. If it can do that with a more reasonable aging temperature, we can have a test that is able to run several evaluations before it becomes of no use. I feel that we are creating a test that will have much of an engine's life consumed by the time it becomes calibrated with three reference oils.

David L. Glaenger
 R & D Manager
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From: Worcester Jr, Dan E. [<mailto:dan.worcester@swri.org>]
Sent: Tuesday, September 29, 2015 1:17 PM

Sequence VIB and VID Engine Aging and Engine Life

Sequence VIF Taskforce
September 30th, 2015
Toyota Motor Corporation

Sept 30, 2015

Prepared for Seq VIF Taskforce

1

Engine Aging Effect in Sequence VI series

TOYOTA

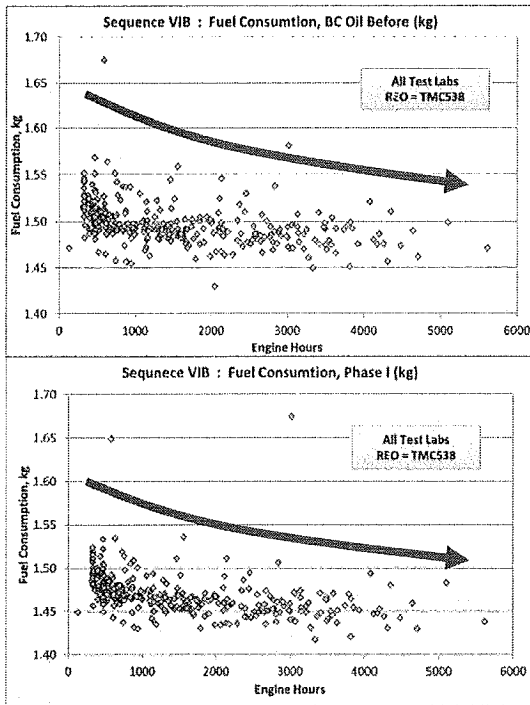
- In order to understand how engine aging proceeds, Sequence VIB and VID data is reviewed.
 - Source : ASTM TMC REO data
- Aging Trend Analysis
 - Fuel consumption of “Baseline before” vs “Engine Hours”
 - Fuel consumption of “FE11” vs “Engine Hours”

Sept 30, 2015

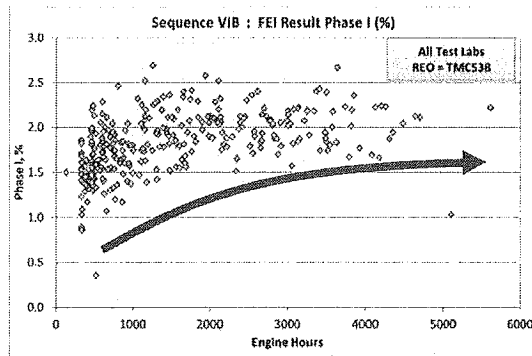
Prepared for Seq VIF Taskforce

2

Sequence VIB



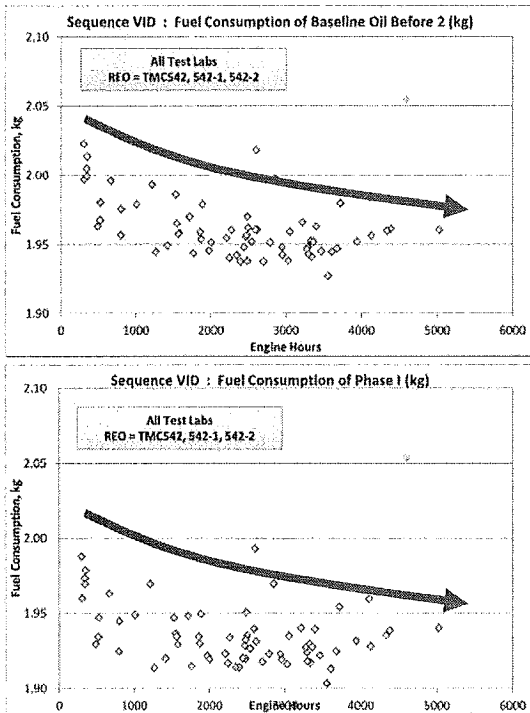
Fuel consumption decreases by engine hours.



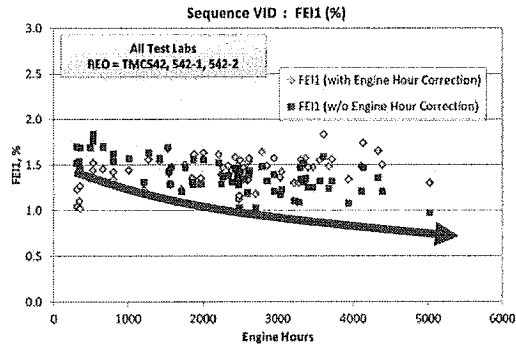
FEI1 result increases by engine hours.

Sequence VID

TOYOTA



Fuel consumption decreases by engine hours.



FEI1 result decreases by engine hours.

Why?

Summary

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- Sequence VI series engine aging
 - Fuel consumption of either Seq VIB or VID decreases by engine hours.
 - Typical engine aging effect.
 - Parts surfaces are smoothed out through operations.
 - FEI1 of ASTM REOs show contrast results
 - Sequence VIB shows better FEI1 by engine hours.
 - Engine aging effect. Same as Seq VIB.
 - Sequence VID shows worse FEI1 (w/o engine hour correction) by engine hours.

Why?

Assumption

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- Sequence VIB has more contribution from low-mid temperature stages.
 - Maintain the response to viscosity.
 - Sequence VID has more contribution from high temperatures stages.
 - Seq VID has response to lubrication condition in which FM plays a role to reduce friction.
 - By aging of engine parts, the VID has less sensitivity to friction reduction by FM.
 - It results in less FEI on REOs and Candidates.
 - Loss of FEI response in Seq VID is not the result of engine degradation.