Minutes of the Sequence VIF Task Force Teleconference Call

April 06, 2016 08:00 CDT

The Sequence VIF Task Force was called to order by Chairman Dan Worcester at 08:00 CST. The meeting Agenda is included as Attachment 1. The meeting attendance is included as Attachment 2.

Chairman Worcester opened the meeting with a few general comments. There have been some issues with getting test data into the TMC web site. Those issues have been resolved and the TMC data is up-to-date.

The minutes from the March 09, 2016 meeting were approved as written and are available on the ASTM-TMC web site. A motion for approval was made by Dan Worcester, second by David Glaenzer

ftp://ftp.astmtmc.cmu.edu/docs/gas/sequencevi/minutes/VIFTaskForceMinutes20160309.pdf

SRI has completed running all four tests in Sense Check 2, IAR is running their third. IAR reported that they had an error in the test program on the stand being utilized that did not recognize an out of specification BLB1/BLB2 shift on their first SC 2 run. They continued to run the test with BLB1/2 shift greater than 0.40% and did not run BLB3. As the test had progressed significantly when the error was recognized, IAR elected to continue the test to fruition. The Task Force discussed the situation and endorsed the continuation of the test. Once we get to the end of or near the end of Sense Check 2, the Task Force may elect to have IAR rerun the test. IAR is in agreement with the plan of action.

Analysis of the Candidate 2 used oil samples at IAR from Sense Check 1 has been distributed and is included as Attachment 3. Sense Check 2 samples will also be analyzed following the same protocol as Sense Check 1. Once those analyses are complete, the Task Force will decide if more analysis is warranted, assuming the matrix continues.

Engine oil pressure and VIF oil pressure data was discussed as there seems to be variability in the VIE Precision Matrix. There appears to be some information in the test procedure that may allow the location of the pressure tap to be misinterpreted. A correction to the wording will be presented to the Surveillance Panel. Prior to the meeting, Dan Worcester distributed plots of VIF Sense Check oil pressure with data available thus far. This is included as Attachment 4 and is available in Excel format at the TMC site. ftp://ftp.astmtmc.cmu.edu/refdata/gas/vif/data/

The next meeting of the group will be on April 27, 2016 at 08:00 CDT.

Having no further business, the meeting was adjourned at 08:19 CDT.

Respectfully submitted,

David L. Glaenzer, Afton Chemical Corporation

Attachment 1

GF-6B Sequence VIF Task Force
04.06.2016

Toll-free dial-in number (U.S. and Canada):
(866) 588-1857
International dial-in number:
(678) 373-4882
Conference code:
1908975

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 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.

1.0 Chairman's Comments
2.0 Roll Call
3.0 The minutes for 03.09.2016 are posted. They are:
ftp://ftp.astmtmc.cmu.edu/docs/gas/sequencevi/minutes/VIFTaskForceMinutes20160309.pdf

4.0 All reference oils are ready at the two test labs.
- 4.1 Both labs are running Sense Check # 2 on different engines from SC #1.
- 4.2 The 4rd SwRI test has been reported to TMC.
- 4.3 The 3nd IAR test is running.
- 4.4 An issue is oil pressure differences at the labs. See Data pdf files that compare VIE by labs and VIF IAR vs SwRI.

5.0 The matrix for Stage 1 Sense Check is complete. Stage 2 Sense Check is running.

6.0 Additional Chem for FEI 2 for the matrix

ICP	D-5185
TAN	D-664
TBN	D-4739
FTIR	IIIG METHOD E-168
VIS	D-445

This analysis will continue for Sense Check # 2 oils.

7.0 Next meeting will be Conference Call will be decided.

Attachment 2

Name	Affiliation		02/24/16		03/09/16		04/06/16	
Adrian Alfonso	Intertek		P		P		P	
Amol C Savant	Ashland	V	P		P			
Andrew Ritchie	Infineum	V	P		P			
Charlie Leverett	Intertek							
Chris Castanien	Nesteoil	V	P					
Cliff Salvensen	ExxonMobil							
Cole Hudson	SwRI	V						
Dan Worcester Jr.	Chairman, SwRI		P		P		P	
David Glaenzer	Secretary, Afton Chemical	V	P		P		P	
Denny Gaal	ExxonMobil							
Doyle Boese	Infineum		P		P		P	
Eric Liu	SwRI							
Gordon Farnsworth	Infineum				P		P	
Guy Stubs	SwRI		P		P		P	
Jason Bowden	OH Technologies	V	P		P		P	
Jim Linden	Toyota	V					P	
Jo Martinez	Chevron		P		P		P	
Kaustav Sinha	Chevron	V	P					
Kevin OMalley	Lubrizol	V						
Mark Adams	Tribology Testing		P					
Mark Mosher	ExxonMobil	V						
Martin Chadwick	Intertek							
Matthew Bowden	OH Technologies		P		P		P	
Michael Conrad	Lubrizol							
Mike McMillan	Infineum		P		P		P	
Nathaniel Moles	Lubrizol		P		P		P	
Patrick Lang	SwRI				P			
Ray Burn	ExxonMobil							
Rich Grundza	ASTM Test Monitoring	V	P		P			
Robert Stockwell	Oronite		P		P		P	
Ron Romano	Ford Motor Company	V						
Satoshi Hirano	Toyota		P				P	
Teri Kowalski	Toyota						P	
Timothy Cushing	General Motors	V	P		P		P	
Todd Dvorak	Afton Chemical		P		P		P	
Tracy King	Haltermann							
Valerie Lieu	Chevron							
William Buscher	Intertek	V	P					
Bob Campbell	Afton							
Mike Ragomo	ExxonMobil							
Travis Kotan	SwRI		P		P		P	
Thomas Hickl	GM Europe							
Jonas Leber	GM Europe							
Jerry Brys	Lubrizol							
Christine Eickscade	SwRI		P		P		P	

Oil 542-2 Both Labs

sampleno	5D12136F1	IAR
sampleid	EG-0004/CMIR-112957	542-2
value	53-221-58-1	

Average of numresult — testcode: DIR AREA3G / DIR NITRATION; DIR OXIDATION; ICP ALL / AG; runno: AL; B; BA; CA; CD; CR; CU; FE; K; MG; MN; MO; NA; NI; P; PB; S; SB; SI; SN; TI; V; ZN; TAN; TBN; V100C CST; V40C CST

splitno	splcomment	DIR NITRATION	DIR OXIDATION	AG	AL	B	BA	CA	CD	CR	CU	FE	K	MG	MN	MO	NA	NI	P	PB	S	SB	SI	SN	TI	V	ZN	TAN	TBN	V100C CST	V40C CST
1	NEW																													8.74	47.75
7	150 HR	26	52	0	10	19	0	1882	0	0	13	30	1	21	4	493	2	0	672	0	1974	0	48	3	0	0	832	2.23	2.4	8.23	44.82

sampleno	6J07456F1	IAR
sampleid	EG-0006/CMIR-113822	542-2
value	53-224-58-4	Invalid due to exhaust back pressure issues

Average of numresult — element: DIR AREA3G / DIR NITRATION; DIR OXIDATION; ICP ALL / AG; AL; B; BA; CA; CD; CR; CU; FE; K; MG; MN; MO; NA; NI; P; PB; S; SB; SI; SN; TI; V; ZN; TAN; TBN; V100C CST; V40C CST

splitno	splcomment	DIR NITRATION	DIR OXIDATION	AG	AL	B	BA	CA	CD	CR	CU	FE	K	MG	MN	MO	NA	NI	P	PB	S	SB	SI	SN	TI	V	ZN	TAN	TBN	V100C CST	V40C CST
1	NEW																													8.74	49.21
7	150 HR	40	29	0	12	19	0	2010	0	0	36	17	1	11	0	520	36	0	725	0	2054	0	24	1	0	0	886	2.59	3	8.38	45.71

sampleno	6F05976F1	IAR
sampleid	EG-0026/CMIR-113231	542-2
value	53-225-58-4A	

Average of numresult — element: DIR AREA3G / DIR NITRATION; DIR OXIDATION; ICP ALL / AG; AL; B; BA; CA; CD; CR; CU; FE; K; MG; MN; MO; NA; NI; P; PB; S; SB; SI; SN; TI; V; ZN; TAN; TBN; V100C CST; V40C CST

splitno	splcomment	DIR NITRATION	DIR OXIDATION	AG	AL	B	BA	CA	CD	CR	CU	FE	K	MG	MN	MO	NA	NI	P	PB	S	SB	SI	SN	TI	V	ZN	TAN	TBN	V100C CST	V40C CST
1	NEW																													8.74	47.7
7	150 HR	43	40	0	13	21	0	2027	0	0	31	19	1	11	0	538	15	0	722	0	1896	0	25	2	0	0	914	2.45	2.4	8.38	45.81

sampleno	5D01526F1	SwRI
sampleid	CMIR-112951	542-2
value	61-237-144-002	

Average of numresult — testcode: DIR AREA3G / DIR NITRATION; DIR OXIDATION; ICP ALL / AG; runno: AL; B; BA; CA; CD; CR; CU; FE; K; MG; MN; MO; NA; NI; P; PB; S; SB; SI; SN; TI; V; ZN; TAN; TBN; V100C CST; V40C CST

splitno	splcomment	DIR NITRATION	DIR OXIDATION	AG	AL	B	BA	CA	CD	CR	CU	FE	K	MG	MN	MO	NA	NI	P	PB	S	SB	SI	SN	TI	V	ZN	TAN	TBN	V100C CST	V40C CST
1	NEW																													8.73	48.57
7		42	50	0	6	15	0	1957	0	0	7	15	0	7	1	508	15	0	708	0	2058	0	18	1	0	0	873	3.18	2.3	8.55	46.46

sampleno	5D01526FA	SwRI
sampleid	CMIR-112951	542-2
value	61-238-144-003	

Average of numresult — element: DIR AREA3G / DIR NITRATION; DIR OXIDATION; ICP ALL / AG; AL; B; BA; CA; CD; CR; CU; FE; K; MG; MN; MO; NA; NI; P; PB; S; SB; SI; SN; TI; V; ZN; TAN; TBN; V100C CST; V40C CST

splitno	splcomment	DIR NITRATION	DIR OXIDATION	AG	AL	B	BA	CA	CD	CR	CU	FE	K	MG	MN	MO	NA	NI	P	PB	S	SB	SI	SN	TI	V	ZN	TAN	TBN	V100C CST	V40C CST
1	NEW																													8.72	47.72
7		42	25	0	9	15	0	1954	0	0	7	15	0	7	0	519	3	0	710	0	2096	0	28	2	0	0	901	3.06	3.4	8.58	46.72

Attach 3
P1 of 2

Oil 543 Both Labs

sampleno	5D15176F1	IAR
sampleid	EG-0005/CMIR-112958	543
value	53-222-58-2	

Average of numresult			testcode	element unno																												
		DIR AREA3G		ICP ALL																										TAN	TBN	V100C CST	V40C CST
		DIR NITRATION	DIR OXIDATION	AG	AL	B	BA	CA	CD	CR	CU	FE	K	MG	MN	MO	NA	NI	P	PB	S	SB	SI	SN	TI	V	ZN				
splitno	splcomment	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
1	NEW																													6.94	35.08	
7	150 HR	14	210	0	3	5	0	1816	0	0	16	23	3	16	2	7	350	0	679	0	2012	0	19	2	0	0	822			2.25	4.4	7.04	36.3

sampleno	6J02026F1	IAR
sampleid	EG-0007/CMIR-113823	543
value	53-223-58-3	

Average of numresult			testcode	element unno																												
		DIR AREA3G		ICP ALL																										TAN	TBN	V100C CST	V40C CST
		DIR NITRATION	DIR OXIDATION	AG	AL	B	BA	CA	CD	CR	CU	FE	K	MG	MN	MO	NA	NI	P	PB	S	SB	SI	SN	TI	V	ZN				
splitno	splcomment	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
1	NEW																													6.94	35.78	
7	150 HR	12	221	0	3	5	0	1895	0	0	15	19	3	14	1	5	399	0	692	0	2034	0	16	0	0	0	855			2.77	3.1	7.12	36.38

sampleno	5D01316F1	SwRI
sampleid	CMIR-112952	543
value	61-236-144-001	

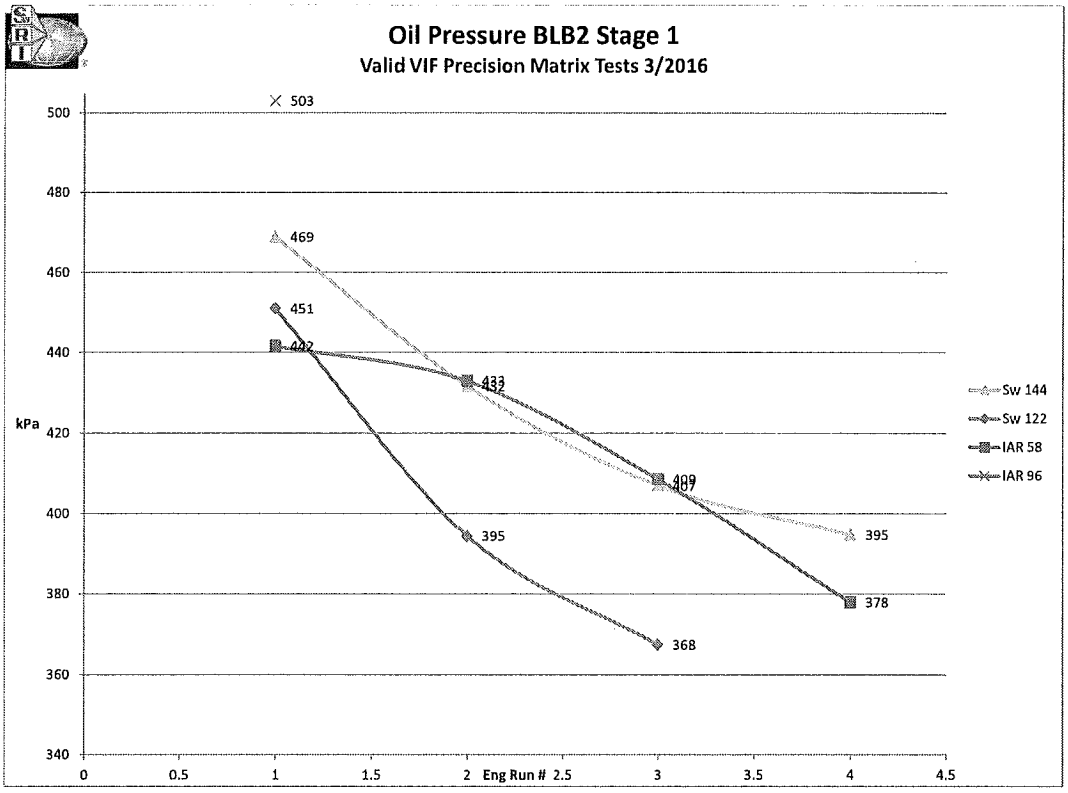
Average of numresult			testcode	element unno																												
		DIR AREA3G	DIR AREA3G	ICP ALL																										TAN	TBN	V100C CST	V40C CST
		DIR NITRATION	DIR OXIDATION	AG	AL	B	BA	CA	CD	CR	CU	FE	K	MG	MN	MO	NA	NI	P	PB	S	SB	SI	SN	TI	V	ZN				
splitno	splcomment	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
1	NEW																													6.93	35.06	
7		24	157	0	4	4	0	1793	0	0	15	32	2	10	6	3	375	0	674	0	1973	0	28	1	0	0	822			2.58	3.2	7.17	36.97

sampleno	6F04676F1	SwRI
sampleid	CMIIR-112952	543
value	61-239-144-004	

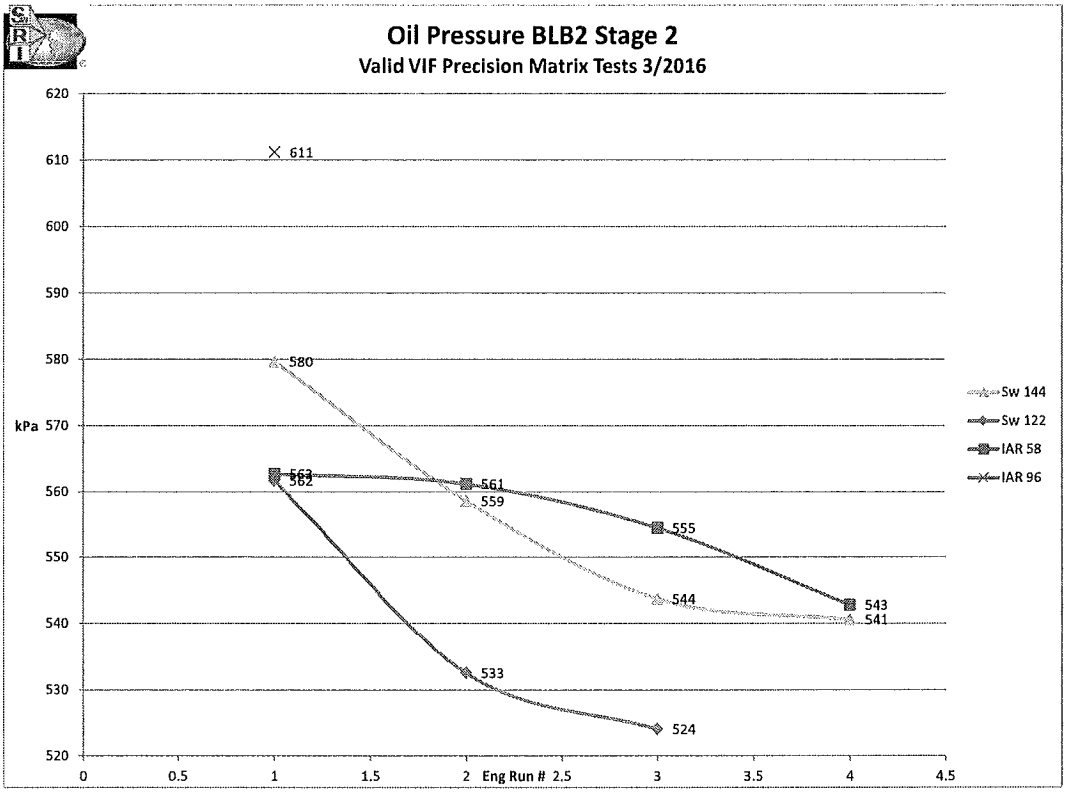
Average of numresult			testcode	element unno																												
		DIR AREA3G		ICP ALL																										TAN	TBN	V100C CST	V40C CST
		DIR NITRATION	DIR OXIDATION	AG	AL	B	BA	CA	CD	CR	CU	FE	K	MG	MN	MO	NA	NI	P	PB	S	SB	SI	SN	TI	V	ZN				
splitno	splcomment	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
1	NEW																													6.92	34.73	
7		19	233	0	2	4	0	1795	0	0	7	16	2	8	0	4	417	0	695	0	2131	0	14	2	0	0	834			2.28	4.4	7.24	37.29

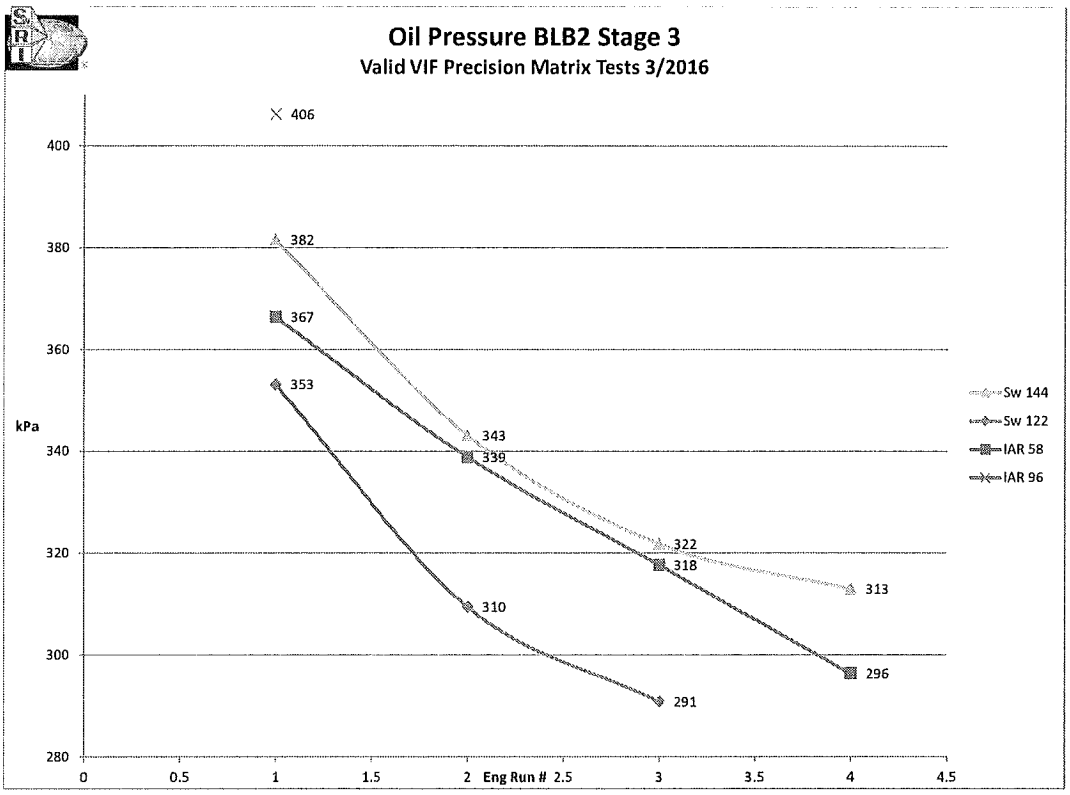
Attach 3
P 2 of 2

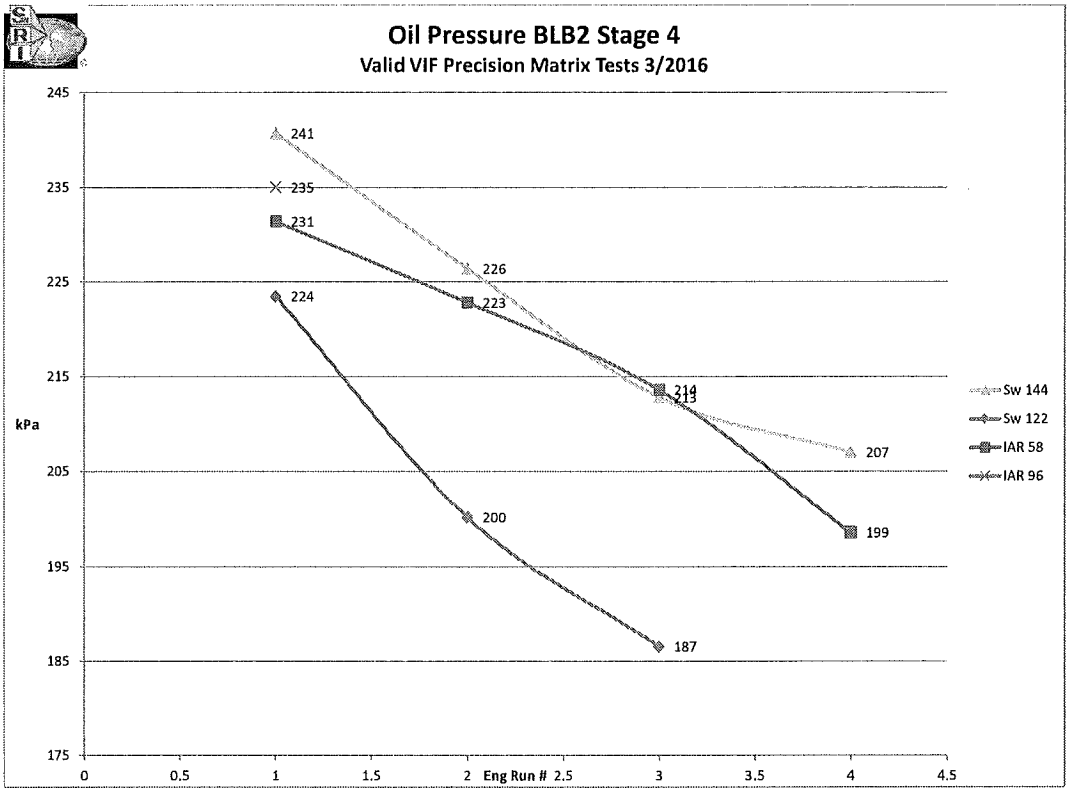
Attachment 4
p. 1 of 3



3/30/2016




Oil Pressure BLB2 Stage 3
Valid VIF Precision Matrix Tests 3/2016
kPa
Eng Run #
406
382
367
353
343
339
322
318
313
310
296
291
Sw 144
Sw 122
IAR 58
IAR 96


Oil Pressure BLB2 Stage 4
Valid VIF Precision Matrix Tests 3/2016
kPa
Eng Run #
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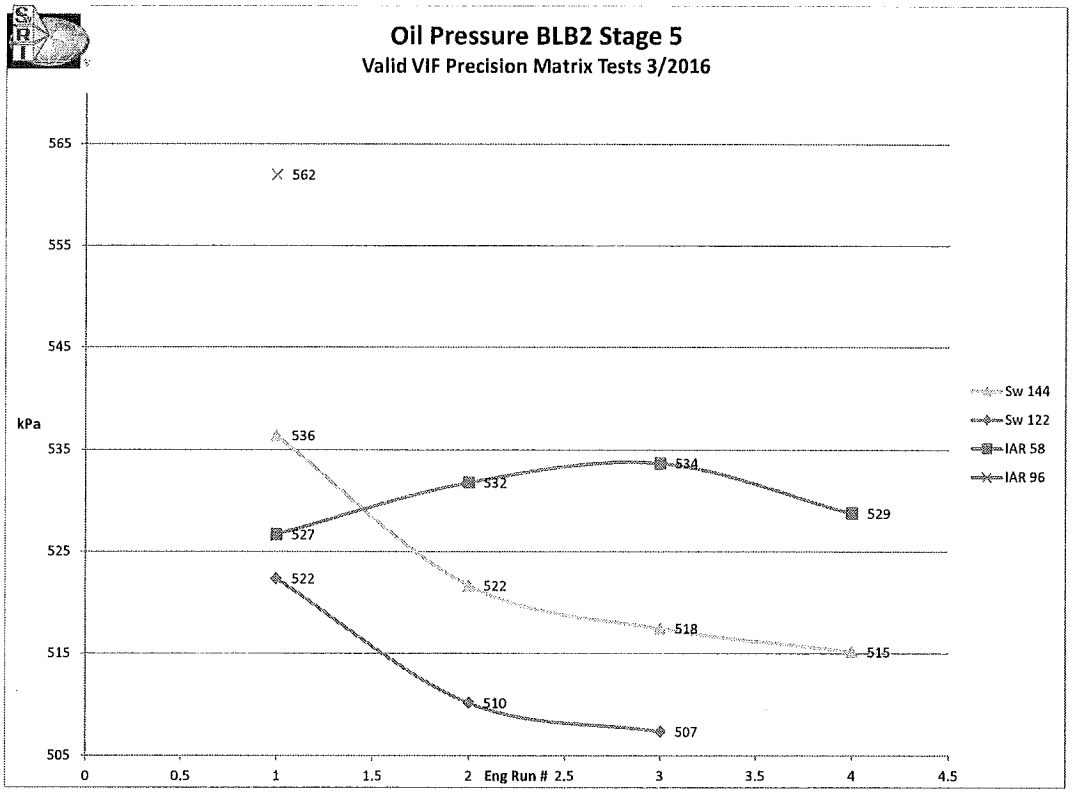
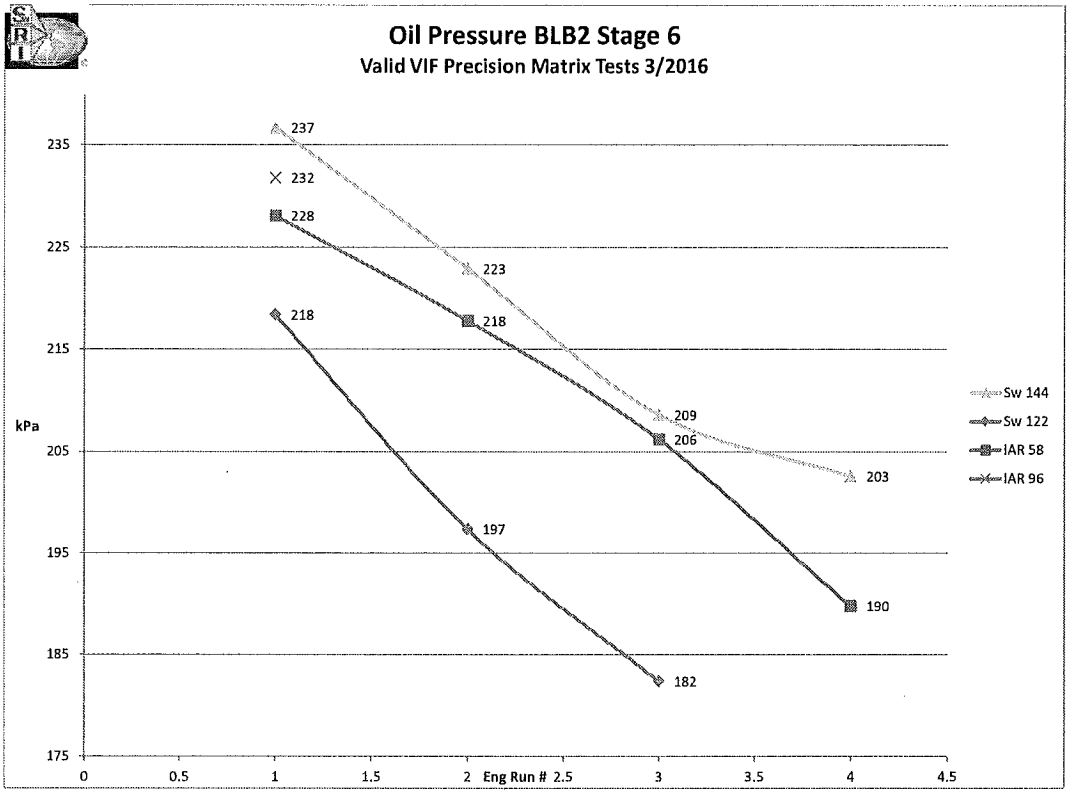
235
231
226
224
223
214
213
207
200
199
187
Sw 144
Sw 122
IAR 58
IAR 96


Oil Pressure BLB2 Stage 5
Valid VIF Precision Matrix Tests 3/2016
kPa
565
555
545
535
525
515
505
0
0.5
1
1.5
2
Eng Run # 2.5
3
3.5
4
4.5
562
536
532
534
529
527
522
522
518
515
510
507
Sw 144
Sw 122
IAR 58
IAR 96

3/30/2016


Oil Pressure BLB2 Stage 6
Valid VIF Precision Matrix Tests 3/2016
kPa
235
225
215
205
195
185
175
0
0.5
1
1.5
2
Eng Run # 2.5
3
3.5
4
4.5
237
232
228
223
218
218
209
206
203
197
190
182
Sw 144
Sw 122
IAR 58
IAR 96