

Report of Meeting
L-37-1 Surveillance Panel #194
August 7, 2019

Attendees:

SwRI -	Stevens
Lubrizol -	Venhoff, Slocum , Drjla, Horvat, Decapite, Foecking
Afton -	Donovan , Sangpeal, Bell, Kearney
Intertek -	Smith , Lange, Rettman
TMC -	Beck , Clark
ExxonMobil -	Kanga, Banas
BASF -	Goyal , Mosher
Dana -	Zyski
Gleason -	Art Reardon
Meritor -	Rabinowitz
Army -	Sattler, Comfort
AAM -	Muransky
Linamar -	Cabaj

Voting Members in **BOLD**

The meeting was called to order at 15:30 pm EST.

1.0 Membership Review

Motion #1 → M. Stevens 1st/2nd D. Smith. - Appoint Daniel Rabinowitz as voting member in place of Jule Rucker from Meritor and Matt Sangpeal as voting member in place of Eric Donovan from Afton for L-37/L-37-1 surveillance panel. Motion passed unanimously, 11-0-0 (for-against-abstain).

2.0 Gleason Hardware Direction

- Undefined distress still present in experimental hardware. Still in need of a possible solution
- Lapping gears was discussed and is a concern of Gleason on shifting gear pattern
- Gleason suggested Superfinishing but panel reluctant in making the gears too good and affecting the discrimination between reference fluids
 - Gleason described the possibility of truncating the superfinish process
- After tossing around a few of the above ideas the topic of trying to manipulate the break in portion of the test to condition the gears more as to hopefully remove the asperities that may contribute to the undefined distress.
- It was decided the next step will be to use the regular grit and deeper case depth from the experimental hardware and run a modified L-37-1 Conditioning Phase.
 - Canadian Conditions
 - Oil - 152-2
 - 60 minutes regular load of 535 Nm
 - 40 minutes double load at 1070 Nm

3.0 2018 Gleason NonLubrited Approval

Motion #2 → W. Venhoff 1st/2nd D. Smith. – Urgent LTMS target update to the approval of the 2018 NonLubrited Gleason Hardware. Targets will include datasets from the 2014 and 2018 NonLubrited as well as any 2018 rated NonLubrited gears with the undefined distress. Motion effective 08/07/2019. Motion passed unanimously, 11-0-0 (for-against-abstain)

4.0 Adhesive Wear Study

- Adhesive wear definition doesn't totally fit the distress that has been observed. Going forward it will be called the "undefined distress"
- 4 labs participated in an Undefined Distress Round Robin Exercise (data in attached PowerPoint)
 - Was commented that the results were overall favorable and pretty much fell in line across the board
- A draft has been proposed to address the previous non-interpretable when adhesive wear was present.
- Proposed draft
 - "12.4 Consider as non-interpretable any non-reference oil test that has not been run in a calibrated test stand or not conducted on approved hardware, or both. Also, consider as non-interpretable any test that shows undefined distress of such magnitude that the part cannot be accurately rated. Add a comment to the test report accordingly."

5.0 Meeting Minutes Approval

Motion #3 → W. Venhoff 1st/2nd D. Smith to approve May 8, 2019, June 12, 2019, and July 12, 2019 meeting minutes as currently written. Motion passed unanimously, 11-0-0 (for-against-abstain).

6.0 New Business

- R. Slocum to set up conference call ASAP to discuss approval of 2014 Lubrited Gleason Hardware

7.0 Adjournment

Meeting Adjourned at 16:50pm EST

Motion #3 → R. Slocum 1st /2nd W. Venhoff to adjourn. Motion passed unanimously, 11-0-0 (Yes-No-Abstain).

Respectfully submitted,

Robert Slocum
L-37-1 Surveillance Panel Chairman



D02.B0.03

L-37-1 Surveillance Panel Meeting

08/07/2019

3:30 pm – 5:00 pm

Warrendale, PA

Robert Slocum



Agenda

- Call to Order/Agenda Review
- Membership Review
- Gleason Hardware Direction
- 2018 Gleason Non Lubrited Approval
- Adhesive Wear Study
- Meeting Minutes Approval
- New Business
- Adjourn

Membership Review

Rob Banas	ExxonMobil
Allen Comfort	US Army
Troy Muransky	AAM
Eric Donovan	Afton (Matt)
Arjun Goyal	BASF
Amy Zyski	Dana
Dylan Beck	TMC
Jule Rucker	Meritor(Daniel)
Dale Smith	Intertek
Robert Slocum	Lubrizol
Mary Stevens	SwRI
Kaled Zreik	GM
Mike Cabaj	Linamar

Total Voting Members = 12

Gleason Hardware Direction

- Concerns
 - Part to Part variation
 - Ground more accurate and repeatable gearsets
 - Lapping will change contact pattern
 - Will behave differently under load
 - Cost \$\$
 - 3rd manufacturing operation as well as an additional cleaning process
 - Loss of Interchangeability
 - Increase cost of logistically keeping rings/pinions matched
 - Trial and error developing lapping machine cycle could consume 5 sets or more developing process
 - Shot peen thoughts?



2018 Gleason Non Lubrited Approval

testkey	lmslab	val	ind	dtcomp	SPIT	RIPP	RIDG	WEAR	TESTHARD	BATCH	PINBAT	Y(i) SPIT	Y(i) RIPP	Y(i) RIDG	Y(i) WEAR	dtcalexp
144514-L371 B	NI		134-1	20190424	9.8	4	4	4	6 NONLUBRITED	GLEASON	2722703	1.267	-2.462	0.222	0.900	
131458-L371 A	NI		134-1	20190504	8	8	3	4	4 NONLUBRITED		2722679	0.067	0.615	-0.889	-1.100	20190904
138436-L371 G	NI		134-1	20190314	9.7	8	4	5	5 NONLUBRITED	06-2018	2122701	1.200	0.615	0.222	-0.100	20190714
141934-L371 D	NI		134-1	20190614	5	8	5	6	6 NONLUBRITED	06-2018	27227010	-1.933	0.615	1.333	0.900	
Average					8.1	7.0	4.0	5.3								
Std.					2.2	2.0	0.8	1.0								
2014 Hardware 134-1 Targets					Average	7.9	7.2	3.8	5.1							
N Size = 10					Std.	1.5	1.3	0.9	1							
<hr/>																
129854-L371 G	NI		152-2	20190321	9.9	9	9	8	8 NONLUBRITED	06-2018	2722701	0.000	0.214	-0.500	0.625	20190721
136433-L371 A	NI		152-2	20190507	9.9	8	10	7	7 NONLUBRITED		2722701	0.000	-0.500	1.167	-0.625	20190907
Average					9.9	8.5	9.5	7.5								
Std.					0	0.7	0.7	0.7								
2014 Hardware 152-2 Targets					Average	9.9	8.7	9.3	7.5							
N Size = 11					Std.	0.1	1.4	0.6	0.8							
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133022-L371 G	NI		155-1	20190316	9.9	9	10	8	8 NONLUBRITED	06-2018	2722703	std is 0	0.231	0.800	0.714	20190716
108831-L371 B	NI		155-1	20190426	9.9	10	10	9	9 NONLUBRITED	GLEASON	2722701	std is 0	1.000	0.800	2.143	
143863-L371 A	NI		155-1	20190502	9.9	9	9	7	7 NONLUBRITED		2722700	std is 0	0.231	-1.200	-0.714	20190902
143864-L371 A	NI		155-1	20190518	9.9	8	10	7	7 NONLUBRITED	06-2018	2722701	std is 0	-0.538	0.800	-0.714	20190918
106962-L371 D	NI		155-1	20190618	9.9	8	9	7	7 NONLUBRITED	06-2018	2722700	std is 0	-0.538	-1.200	-0.714	
Average					9.9	8.8	9.6	7.6								
Std.					0	0.8	0.5	0.9								
2014 Hardware 155-1 Targets					Average	9.9	8.7	9.6	7.5							
N Size = 11					Std.	0	1.3	0.5	0.7							
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other tests not used for stats:																
130214-L371 B	MI		152-2	20190425	9.9	9	10	8	8 NONLUBRITED		2722679	non- interpretable due to "adhesive wear"				
144519-L371 B	NI		152-2	20190617	9.9	10	9	8	8 NONLUBRITED	06-2018	2722703	Canadian Test				
138441-L371 G	NI		152-2	20190710	9.9	9	9	8	8 NONLUBRITED	06-2018	2722679	Canadian Test				
114511-L371 D	MI		152-2	20190612	9.9	9	9	8	8 NONLUBRITED	06-2018	2722701	non- interpretable due to "adhesive wear"				



2018 Gleason Non Lubrited Approval

testkey	lmslab	val	ind	dtcomp	SPIT	RIPP	RIDG	WEAR	TESTHARD	BATCH	PINBAT	Y(i) SPIT	Y(i) RIPP	Y(i) RIDG	Y(i) WEAR	dtealexp
144514-L371 B	NI	134-1	20190424	9.8	8	4	4	6	NONLUBRITED	GLEASON	2722703	1.267	-2.462	0.222	0.900	
131458-L371 A	NI	134-1	20190504	8	8	3	3	4	NONLUBRITED		2722679	0.067	0.615	-0.889	-1.100	20190904
138436-L371 G	NI	134-1	20190314	9.7	8	4	4	5	NONLUBRITED	06-2018	2122701	1.200	0.615	0.222	-0.100	20190714
141934-L371 D	NI	134-1	20190614	5	8	5	5	6	NONLUBRITED	06-2018	27227010	-1.933	0.615	1.333	0.900	
				Average	8.1	7.0	4.0	5.3								
				Std.	2.2	2.0	0.8	1.0								
2014 Hardware 134-1 Targets				Average	7.9	7.2	3.8	5.1								
N Size = 10				Std.	1.5	1.3	0.9	1								
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129854-L371 G	NI	152-2	20190321	9.9	9	9	9	8	NONLUBRITED	06-2018	2722701	0.000	0.214	-0.500	0.625	20190721
136433-L371 A	NI	152-2	20190507	9.9	8	10	10	7	NONLUBRITED		2722701	0.000	-0.500	1.167	-0.625	20190907
130214-L371 B	MI	152-2	20190425	9.9	9	10	10	8	NONLUBRITED		2722679	0.000	0.214	1.167	0.625	
114511-L371 D	MI	152-2	20190612	9.9	9	9	9	8	NONLUBRITED	06-2018	2722701	0.000	0.214	-0.500	0.625	
				Average	9.9	8.5	9.5	7.5								
				Std.	0.0	0.5	0.6	0.5								
2014 Hardware 152-2 Targets				Average	9.9	8.7	9.3	7.5								
N Size = 11				Std.	0.1	1.4	0.6	0.8								
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133022-L371 G	NI	155-1	20190316	9.9	9	10	10	8	NONLUBRITED	06-2018	2722703	std is 0	0.231	0.800	0.714	20190716
108831-L371 B	NI	155-1	20190426	9.9	10	10	10	9	NONLUBRITED	GLEASON	2722701	std is 0	1.000	0.800	2.143	
143863-L371 A	NI	155-1	20190502	9.9	9	9	9	7	NONLUBRITED		2722700	std is 0	0.231	-1.200	-0.714	20190902
143864-L371 A	NI	155-1	20190518	9.9	8	10	10	7	NONLUBRITED	06-2018	2722701	std is 0	-0.538	0.800	-0.714	20190918
106962-L371 D	NI	155-1	20190618	9.9	8	9	9	7	NONLUBRITED	06-2018	2722700	std is 0	-0.538	-1.200	-0.714	
				Average	9.9	8.8	9.6	7.6								
				Std.	0.0	0.8	0.5	0.9								
2014 Hardware 155-1 Targets				Average	9.9	8.7	9.6	7.5								
N Size = 11				Std.	0	1.3	0.5	0.7								
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other tests not used for stats:																
144519-L371 B	NI	152-2	20190617	9.9	10	9	9	8	NONLUBRITED	06-2018	2722703	Canadian Test				
138441-L371 G	NI	152-2	20190710	9.9	9	9	9	8	NONLUBRITED	06-2018	2722679	Canadian Test				



2018 Gleason Non Lubrited Approval

Combined Targets

Test Conducted on 2018 NL Hardware

Test Conducted on 2014 NL Hardware

testkey	Itmslab	testnumber	val	ind	dtcomp	SPIT	RIPP	RIDG	WEAR	TESTHARD	BATCH	PINBAT	RINGBAT
90169-L371	A	05 0041	NI	134	20150107		9.5	6	3	6 NONLUBRITED		2115435	2116457
99160-L371	D	3 186	NI	134	20150217		8	9	6	6 NONLUBRITED	04-2014	2124465	2124399
106145-L371	A	05 0044	NI	134	20150227		8	8	3	5 NONLUBRITED		2116453	2115440
106146-L371	A	05 0048	NI	134	20150307		9.8	7	4	4 NONLUBRITED		2116453	2115440
107311-L371	B	361 374	NI	134	20150510		5	8	4	5 NONLUBRITED		2116453	2115440
107190-L371	G	TB3 029	NI	134	20150721		6	9	3	3 NONLUBRITED	04-2014	2116454	2116458
114306-L371	B	361 606	AC	134	20190419		8	6	3	5 NONLUBRITED	04-2014-	2153060	2153063
131457-L371	A	05 0086	AC	134-1	20180126		7	7	4	6 NONLUBRITED		2135701	2135618
133020-L371	G	TB3 091	AC	134-1	20181106		8	5	4	5 NONLUBRITED	04-2014	2135703	2135700
138436-L371	G	TB3 119	NI	134-1	20190314		9.7	8	4	5 NONLUBRITED	06-2018	2122701	2722705
138437-L371	G	TB3 0124	AC	134-1	20190330		9.5	7	4	6 NONLUBRITED	04-2014	2124463	2124397
144514-L371	B	361 607	NI	134-1	20190424		9.8	4	4	6 NONLUBRITED	GLEASON	2722703	2722704
131458-L371	A	05 0139	NI	134-1	20190504		8	8	3	4 NONLUBRITED		2722679	2722704
141934-L371	D	NOTL 16	NI	134-1	20190614		5	8	5	6 NONLUBRITED	06-2018	27227010	2722706
Average							8.0	7.1	3.9	5.1			
Std.							1.7	1.5	0.9	0.9	N Size	14	

testkey	Itmslab	testnumber	val	ind	dtcomp	SPIT	RIPP	RIDG	WEAR	TESTHARD	BATCH	PINBAT	RINGBAT
107271-L371	A	05 0047	NI	152-2	20150305		9.9	7	10	7 NONLUBRITED		2116453	2115440
107272-L371	A	05 0050	NI	152-2	20150312		9.9	6	9	7 NONLUBRITED		2116453	2115440
99162-L371	D	3 195	NI	152-2	20150319		9.9	10	9	7 NONLUBRITED	04-2014	2153061	2153064
99163-L371	D	3 196	NI	152-2	20150321		9.9	10	8	7 NONLUBRITED	04-2014	2153061	2153064
99172-L371	B	361 370	NI	152-2	20150503		9.9	10	10	9 NONLUBRITED		2135702	2135619
99173-L371	B	361 372	NI	152-2	20150507		9.9	10	10	8 NONLUBRITED		2135702	2135619
107194-L371	G	TB3 032	NI	152-2	20150805		9.9	8	9	9 NONLUBRITED	04-2014	2116454	2116458
107195-L371	G	TB3 033	NI	152-2	20150808		9.9	10	9	8 NONLUBRITED	04-2014	2116454	2116458
129775-L371	A	05 0088	AC	152-2	20180222		9.9	8	9	7 NONLUBRITED		2135701	2135618
129777-L371	A	05 0111	AC	152-2	20180712		9.9	8	10	7 NONLUBRITED		2124465	2124399
129854-L371	G	TB3 0121	NI	152-2	20190321		9.9	9	9	8 NONLUBRITED	06-2018	2722701	2722705
129856-L371	G	TB3 0123	OC	152-2	20190327		9.6	9	9	7 NONLUBRITED	04-2014	2124463	2124397
136433-L371	A	05 0140	NI	152-2	20190507		9.9	8	10	7 NONLUBRITED		2722701	2722705
Average							9.9	8.7	9.3	7.5			
Std.							0.1	1.3	0.6	0.8	N Size	13	



2018 Gleason Non Lubrited Approval

Combined Targets

testkey	ltmslab	testnumber	val	ind	dtcomp	SPIT	RIPP	RIDG	WEAR	TESTHARD	BATCH	PINBAT	RINGBAT
106798-L371	D	3 185	NI	155-1	20150213		9.9	9	9	7 NONLUBRITED	04-2014	GLEASON	GLEASON
106973-L371	A	05 0043	NI	155-1	20150225		9.9	9	10	8 NONLUBRITED		2115435	2116457
106960-L371	D	3 198	NI	155-1	20150325		9.9	10	10	7 NONLUBRITED	04-2014	2124465	2124399
106968-L371	B	361 366	NI	155-1	20150430		9.9	10	10	8 NONLUBRITED		2116453	2115440
106969-L371	B	361 368	NI	155-1	20150502		9.9	10	10	9 NONLUBRITED		2135702	2135619
106964-L371	G	TB3 030	NI	155-1	20150724		9.9	10	9	8 NONLUBRITED	04-2014	2116454	2116458
106965-L371	G	TB3 031	NI	155-1	20150730		9.9	9	9	8 NONLUBRITED	04-2014	2116454	2116458
115159-L371	A	05 0109	OC	155-1	20180626		9.9	7	10	7 NONLUBRITED		2135701	2135618
115160-L371	A	05 0110	OC	155-1	20180704		9.9	8	10	7 NONLUBRITED		2135701	2135618
131461-L371	A	05 0135	OC	155-1	20190131		9.9	7	9	7 NONLUBRITED		2153061	2153064
142303-L371	A	05 0136	OC	155-1	20190228		9.9	7	10	7 NONLUBRITED		2153060	2153063
133022-L371	G	TB3 120	NI	155-1	20190316		9.9	9	10	8 NONLUBRITED	06-2018	2722703	2722704
108831-L371	B	361 609	NI	155-1	20190426		9.9	10	10	9 NONLUBRITED	GLEASON	2722701	2722705
143863-L371	A	05 0138	NI	155-1	20190502		9.9	9	9	7 NONLUBRITED		2722700	2722706
143864-L371	A	05 0142	NI	155-1	20190518		9.9	8	10	7 NONLUBRITED	06-2018	2722701	2722705
106962-L371	D	NOTL 17	NI	155-1	20190618		9.9	8	9	7 NONLUBRITED	06-2018	2722700	2722706
Average							9.9	8.8	9.6	7.6			
Std.							0.0	1.1	0.5	0.7	N Size	16	



2018 Gleason Non Lubrited Approval

Combined Target_MI's Included

testkey	ltmslab	testnumber	val	ind	dtcomp	SPIT	RIPP	RIDG	WEAR	TESTHARD	BATCH	PINBAT	RINGBAT
107271-L371	A	05 0047	NI	152-2	20150305		9.9	7	10	7 NONLUBRITED		2116453	2115440
107272-L371	A	05 0050	NI	152-2	20150312		9.9	6	9	7 NONLUBRITED		2116453	2115440
99162-L371	D	3 195	NI	152-2	20150319		9.9	10	9	7 NONLUBRITED	04-2014	2153061	2153064
99163-L371	D	3 196	NI	152-2	20150321		9.9	10	8	7 NONLUBRITED	04-2014	2153061	2153064
99172-L371	B	361 370	NI	152-2	20150503		9.9	10	10	9 NONLUBRITED		2135702	2135619
99173-L371		361 372	NI	152-2	20150507		9.9	10	10	8 NONLUBRITED		2135702	2135619
107194-L371	G	TB3 032	NI	152-2	20150805		9.9	8	9	9 NONLUBRITED	04-2014	2116454	2116458
107195-L371	G	TB3 033	NI	152-2	20150808		9.9	10	9	8 NONLUBRITED	04-2014	2116454	2116458
129775-L371	A	05 0088	AC	152-2	20180222		9.9	8	9	7 NONLUBRITED		2135701	2135618
129777-L371	A	05 0111	AC	152-2	20180712		9.9	8	10	7 NONLUBRITED		2124465	2124399
129854-L371	G	TB3 0121	NI	152-2	20190321		9.9	9	9	8 NONLUBRITED	06-2018	2722701	2722705
129856-L371	G	TB3 0123	OC	152-2	20190327		9.6	9	9	7 NONLUBRITED	04-2014	2124463	2124397
130214-L371	B	361 608	MI	152-2	20190425		9.9	9	10	8 NONLUBRITED		2722679	2722707
136433-L371	A	05 0140	NI	152-2	20190507		9.9	8	10	7 NONLUBRITED		2722701	2722705
114511-L371	D	NOTL 15	MI	152-2	20190612		9.9	9	9	8 NONLUBRITED	06-2018	2722701	2722705
Average							9.9	8.7	9.3	7.6			
Std.							0.1	1.2	0.6	0.7		N Size	15

Intertek Summary

	Current Targets			Combined Targets 2014+2018				2018 Only			
	152-2	134	155-1	152-2	152-2 w/Adhesive Wear	134	155-1	152-2	152-2 w/Adhesive Wear	134	155-1
Spit	9.9	7.9	9.9	9.9	9.9	8	9.9	9.9	9.9	8.1	9.9
Ripp	8.7	7.2	8.7	8.7	8.7	7.1	8.8	8.5	8.5	7.0	8.8
Ridg	9.3	3.8	9.6	9.3	9.3	3.9	9.6	9.5	9.5	4.0	9.6
Wear	7.5	5.1	7.5	7.5	7.6	5.1	7.6	7.5	7.5	5.3	7.6

Adhesive Wear Study

L-37-1 Gear Rating Undefined Distress Round Robin Exercise

		L-37 PINION GEARS														
SET #	DISTRESS	Sanchez, A 10	Rodriguez 22	Foecking 30	Barrera 34	Aguirre 37	Trevino 38	Dominguez 42	DeCapite 43	Bolaney 44	Beard 45	Hayden	MIN	MAX	AVG	Std Dev
A	Ridging	8	9	9	8	9	8	8	9	9	9	8	8	9	8.60	0.516
	Rippling	9	9	10	9	10	9	9	10	10	9	9	9	10	9.40	0.516
	Wear	7	8	8	8	8	7	8	9	8	8	9	7	9	7.90	0.568
	Spitting	9.9	9.9	9.8	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.80	9.90	9.89	0.032
B	Ridging	10	9	9	9	9	10	9	10	10	9	9	9	10	9.40	0.516
	Rippling	8	9	9	9	8	8	9	8	8	9	9	8	9	8.50	0.527
	Wear	7	8	7	8	8	7	8	8	8	8	8	7	8	7.70	0.483
	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.90	9.90	9.90	0.000
C	Ridging	10	9	10	10	9	10	10	10	10	9	9	9	10	9.70	0.483
	Rippling	7	9	9	9	9	7	8	8	8	8	8	7	9	8.20	0.789
	Wear	7	8	8	8	7	7	8	9	8	8	8	7	9	7.80	0.632
	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.90	9.90	9.90	0.000
HXC	Ridging	10	9	10	10	9	10	10	9	10	9	9	9	10	9.60	0.516
	Rippling	9	9	10	9	9	9	9	10	9	9	9	9	10	9.20	0.422
	Wear	7	8	9	8	8	7	7	10	8	7	9	7	10	7.90	0.994
	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.90	9.90	9.90	0.000

Adhesive Wear Study

L-37-1 Gear Rating Undefined Distress Round Robin Exercise

		L-37 PINION GEARS														
SET #	DISTRESS	Sanchez, A 10	Rodriguez 22	Foecking 30	Barrera 34	Aguirre 37	Trevino 38	Dominguez 42	DeCapite 43	Bolaney 44	Beard 45	Hayden	MIN	MAX	AVG	Std Dev
IZB	Ridging	9	9	9	8	9	9	9	9	9	9	9	8	9	8.90	0.316
	Rippling	9	9	10	10	10	9	9	10	10	9	8	9	10	9.50	0.527
	Wear	7	8	8	8	8	7	8	9	8	8	9	7	9	7.90	0.568
	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.90	9.90	9.90	0.000
N9B	Ridging	10	9	10	9	9	10	10	9	10	9	9	9	10	9.50	0.527
	Rippling	8	9	8	9	9	8	8	9	9	8	7	8	9	8.50	0.527
	Wear	7	8	8	8	9	7	8	10	8	7	9	7	10	8.00	0.943
	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.90	9.90	9.90	0.000
XBB	Ridging	8	9	9	9	9	8	9	8	9	9	8	8	9	8.70	0.483
	Rippling	9	9	10	9	9	9	9	10	10	9	9	9	10	9.30	0.483
	Wear	7	8	8	8	8	7	7	9	8	8	9	7	9	7.80	0.632
	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.90	9.90	9.90	0.000
X2C	Ridging	8	9	9	9	9	8	9	8	9	9	9	8	9	8.70	0.483
	Rippling	9	9	10	10	9	9	9	10	10	9	8	9	10	9.40	0.516
	Wear	7	8	8	8	8	7	8	9	8	8	9	7	9	7.90	0.568
	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.90	9.90	9.90	0.000
118	Ridging	7	9	9	8	9	7	9	8	9	9	8	7	9	8.40	0.843
	Rippling	9	7	9	9	9	9	8	10	10	8	7	7	10	8.80	0.919
	Wear	6	7	7	7	7	7	7	9	7	7	7	6	9	7.10	0.738
	Spitting	9.8	9.9	9.9	9.9	9.8	9.8	9.9	9.9	9.8	9.9	9.7	9.80	9.90	9.86	0.052
7QB	Ridging	9	9	10	9	9	9	9	9	9	9	8	8	10	9.00	0.447
	Rippling	9	9	10	10	10	9	10	10	10	9	9	9	10	9.55	0.522
	Wear	7	8	8	8	8	7	8	10	8	8	9	7	10	8.09	0.831
	Spitting	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	10	10	9.90	0.000

Meeting Minutes Approval

- May 8th, 2019
- June 12th, 2019 (Conf. Call)
- July 12th, 2019 (Conf. Call)



D02.B0.03

L-37-1 Surveillance Panel Meeting

New Business



D02.B0.03

L-37-1 Surveillance Panel Meeting

Adjourn

ASTM L-37/L-37-1 Surveillance Panel Membership / Sign In List

Meeting Date:

Initials*	Name	✓	Voting Status	Company Name & Address	Phone/Email Info
<i>DB</i>	Banas, Rob	✓	Voting	ExxonMobil Fuels, Lubricants & Specialties 114 Arcadia Park Dr. Canton, GA 30114	Phone: 678-493-3930 Fax: E-Mail: rob.a.banas@exxonmobil.com
<i>DB</i>	Beck, Dylan	✓	Voting	ASTM Test Monitoring Center 6555 Penn Avenue Pittsburgh, Pennsylvania 15206	Phone: 412-365-1037 Fax: E-Mail: djb@astmtnc.cmu.edu
	Belay, Mesfin		Non Voting	Detroit Diesel 13400 Outer Drive W. Detroit, MI 48239	Phone: 313-592-5970 Fax: 313-592-5952 E-Mail: mesfin_belay@daimler.com
<i>DB</i>	Bell, Don	✓	Non Voting	Afton Chemical 500 Spring Street Richmond, VA 23219	Phone: 804-788-6332 Fax: 804-788-6243 E-Mail: don.bell@aftonchemical.com
	Bolaney, Jonathan		Non Voting	The Lubrizol Corporation 29400 Lakeland Boulevard Wickliffe, Ohio 44092	Phone: 440-347-7742 Fax: E-Mail: joby@lubrizol.com
<i>JAC</i>	Clerk, Jeff	✓	Non Voting	ASTM Test Monitoring Center 6555 Penn Avenue Pittsburgh, Pennsylvania 15206	Phone: 412-365-1032 Fax: 412-365-1047 E-Mail: jac@astmtnc.cmu.edu
<i>ACL</i>	Comfort, Allan	✓	Voting	US Army Green Vehicle Systems Center CDC - G-15C 6501 East 11 Mile road Warren, MI 48397-5000	Phone: 586-282-4225 Fax: 586-282-4244 E-Mail: allen.s.comfort.chv@mail.mil
	Dennis, Mike		Non-Voting	The Gleason Works 1000 University Ave Rochester, NY 14692	Phone: 585-241-4081 Fax: E-Mail: mdennis@gleason.com
<i>ED</i>	Donovan, Eric	✓	Voting	Afton Chemical 500 Spring Street Richmond, VA 23219	Phone: 804-788-5097 Fax: E-Mail: Eric.Donovan@aftonchemical.com
<i>DRJ</i>	Drjja, Kristijan	✓	Non-Voting	The Lubrizol Corporation 29400 Lakeland Boulevard Wickliffe, Ohio 44092	Phone: 440-347-2326 Fax: E-Mail: kristijan.drjja@lubrizol.com

* Initial to indicate attendance at subject meeting

ASTM L-37/L-37-1 Surveillance Panel Membership / Sign In List
Meeting Date:

Initials*	Name	Voting Status	Company Name & Address	Phone/Email Info
	Farber, Frank	Non Voting	ASTM Test Monitoring Center 6555 Penn Avenue Pittsburgh, Pennsylvania 15206	Phone: 412-365-1030 Fax: 412-365-1047 E-Mail: fmf@astmtmc.cmu.edu
<i>BF</i>	Foeking, Brian ✓	Non Voting	The Lubrizol Corporation 29400 Lakeland Boulevard Wickliffe, Ohio 44092	Phone: 440-347-2130 Fax: 440-347-9011 E-Mail: brian.foeking@lubrizol.com
	Gao, Hong	Non-Voting	Conoco Phillips 100 s Pine St. Ponca City, OK 74602	Phone: 580-767-2126 Fax: 580-767-4534 E-Mail: hong.gao@conocophillips.com
	Goyal, Arjun	Voting	BASF 500 White Plains Rd Tarrytown NY	Phone: 914-785-2083 Fax: E-Mail: Arjun.Goyal@BASF.com
	Jackson, Matt	Non Voting	Southwest Research Institute PO Drawer 28510 San Antonio, Texas 78228-0510	Phone: 210-522-6981 Fax: 210-522-6858 E-Mail: matt.jackson@swri.org
	Joy, Tisha	Non Voting	BASF 500 White Plains Rd Tarrytown NY	Phone: 914-785-2206 Fax: E-Mail: tisha.joy@BASF.com
<i>PK</i>	Kanga, Percy ✓	Non Voting	ExxonMobil Research & Engineering 1545 Route 22 East Clinton, NJ 08801	Phone: 908-335-3780 Fax: E-Mail: percy.r.kanga@exxonmobil.com
<i>MB</i>	Kearney, Bill ✓	Non Voting	Afton Chemical Southfield, MI	Phone: Fax: E-Mail:
<i>AL</i>	Lange, Anthony ✓	Non Voting	Intertek Automotive Research 5404 Bandera Rd San Antonio, TX 78238	Phone: 210 654 2310 Fax: E-Mail: anthony.lange@intertek.com
	Milner, Jeff	Non Voting	Tianhe Chemical	Phone: 804-252-6928 Fax: E-Mail: jimilner@tianhe-us.com

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Initials*	Name	Voting Status	Company Name & Address	Phone/Email Info
<i>None</i>	Mosher, Donna	Non Voting	BASF 100 Park Ave. Florham Park, NJ	Phone: 269-217-1715 Fax: E-Mail: donna.mosher@basf.com
<i>Mr.</i>	Muransky, Troy	Voting	AAM	Phone: 734-564-8406 Fax: E-Mail: troy.muransky@aam.com
	Pappademos, Lou	Non Voting	Dana Corporation Fort Wayne, IN	Phone: Fax: E-Mail: lou.pappademos@dana.com
	Reardon, Art	Non Voting	The Gleason Works 1000 University Ave Rochester, NY 14692	Phone: 585-256-6875 Fax: E-Mail: areardon@gleason.com
	Rettmann, Kevin	Non Voting	Intertek Automotive Research 5404 Bandera Rd San Antonio, Texas	Phone: Fax: E-Mail: Kevin.Rettmann@intertek.com
<i>DR</i>	<i>Pabinski, Jr, Daniel</i> Rucker, Julie	Voting	Mentor Automotive 2135 West Maple Troy, Michigan 48084	Phone: 248-435-1430 <i>1544</i> Fax: <i>Daniel Pabinski</i> E-Mail: <i>Julie.rucker@Mentor.com</i>
	Sanchez, Art	Non Voting	Southwest Research Institute PO Drawer 28510 San Antonio, Texas 78228-0510	Phone: 210-522-3445 Fax: 210-680-1777 E-Mail: asanchez@swri.org
<i>ES</i>	Sattler, Eric	Non Voting	US Army Ground Vehicle Systems Center 6601 East 11 Mile road Warren, MI 48397-5000	Phone: 586-282-2272 Fax: E-Mail: eric.r.sattler.civ@mail.mil
	Slocum, Robert	Voting/Chair	The Lubrizol Corporation 29400 Lakeland Boulevard Wickliffe, Ohio 44092	Phone: 440-347-5102 Fax: E-Mail: robert.slocum@lubrizol.com
<i>DS</i>	Smith, Dale	Voting	Intertek Automotive Research 5404 Bandera Rd San Antonio, Texas	Phone: 412-855-6854 Fax: 210-684-6074 E-Mail: Dale.Smith@intertek.com

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Initials*	Name	Voting Status	Company Name & Address	Phone/Email Info
	Song, HaiQing	Non Voting	Research Institute of Petroleum Processing No. 18, XueYan Road, PO Box 914-19 Beijing 10083 P.R. China	Phone: 011-86-10-8236-8182 Fax: 011-86-10-6231-1290 E-Mail: songhq@ripp-sinopec.com
	Stevens, Mary	<input checked="" type="checkbox"/> Voting	Southwest Research Institute PO Drawer 28510 San Antonio, Texas 78228-0510	Phone: 210-522-2208 Fax: E-Mail: mary.stevens@swri.org
	Tian, Johnny	Non Voting	Afton Chemical 26 Pingsheng Rd. Suzhou, China	Phone: +86 182 51155728 Fax: E-Mail: gangqiang.tian@aftonchemical.com
	Thrush, Steven	Non Voting	US Army RDECOM/TARDEC 6501 East 11 Mile road Warren, MI 48397-5000	Phone: 586-282-5170 Fax: E-Mail: steven.j.thrush.civ@mail.mil
WV	Venthoff, Wes	<input checked="" type="checkbox"/> Non Voting	The Lubrizol Corporation 29400 Lakeland Boulevard Wickliffe, Ohio 44092	Phone: 440-347-4879 Fax: E-Mail: wes.venthoff@lubrizol.com
	Warden, Rebecca	Non Voting	Southwest Research Institute PO Drawer 28510 San Antonio, Texas 78228-0510	Phone: 210-522-6286 Fax: E-Mail: rebecca.warden@swri.org
	Xie, JingChun	Non Voting	Lanzhou Lube Oil R&D Institute No. 369 Yumen Street, XIGU District Lanshou 730060, Gansu Province P.R. China	Phone: 011-86-931-793-3713 Fax: 011-86-139-9319-2560 E-Mail: xiejingchun_rhy@petrochina.com.cn
	Zreik, Khaled	<input checked="" type="checkbox"/> Voting	General Motors 823 Joslyn Ave Pontiac, MI 48340-2925	Phone: 248-977-9214 Fax: 248-857-2550 E-Mail: khaled.zreik@gm.com
	Zyski, Amy	<input checked="" type="checkbox"/> Voting	Dana Corporation 3939 Technology Drive Maumee, OH 43537	Phone: 419-887-3432 Fax: E-Mail: amy.zyski@dana.com
MC	CHAFF, MIKE	<input checked="" type="checkbox"/>	LINAMAR	Phone: 313-820-0119 Fax: E-Mail: MICHAEL.CHAFF@LINAMAR.COM

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ASTM L-37/L-37-1 Surveillance Panel Membership / Sign In List
Meeting Date:

Initials*	Name	Voting Status	Company Name & Address	Phone/Email Info
ND	Vanessa DeCarrie	ND	LUBRIZOL	Phone: 440-347-2134 Fax: E-Mail:
ND	Matt Sampson	ND	Afton	Phone: 804-788-5364 Fax: E-Mail: Matt.Sampson@AftonChemical.com
				Phone: Fax: E-Mail:
				Phone: Fax: E-Mail:

* Initial to Indicate attendance at subject meeting