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Committee D02 on PETROLEUM PRODUCTS AND LUBRICANTS

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June 6th, 2014

Reply to:
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ASTM D02.B0.03 L-37-1 Next Generation Hardware Task Force
Members and Guests:

Attached for your review and comment are the unconfirmed minutes of the:

- **May 7th, 2013 Next Generation Hardware Task Force Meeting; Detroit, Mi.**

Please direct any corrections or comments to my attention.

Sincerely,

Chris Prengaman, Chairman
L-37-1 Hardware Taskforce Chairman

Report of Meeting
L-37-1 Next Generation Hardware Task Force Meeting
Surveillance Panel Meeting, PRI Headquarters, Warrendale PA
May 7th, 2014 Meeting

Attendees:

Voting Members in **BOLD**

Gottwald, Thomas – Afton Chemical

Recinos, Will – Afton Chemical

Keisler, Marc – Afton Chemical

Chalkley, Jay – Afton Chemical

Bell, Don – Afton Chemical

Dharte, John – American Axle Manufacturing

Parke, Scott – ASTM TMC

Koehler, Mike – Custom Coating (Teleconference)

Banas, Rob – ExxonMobil

Kanga, Percy - ExxonMobil

Hiem, Scott – The Gleason Works (Teleconference)

Trader, Angela – Intertek Automotive Research

Prengaman, Chris – Lubrizol

Gropp, Jerry – Lubrizol

Umerley, Matt – Lubrizol

Muransky, Troy – Meritor

McGlone, Bruce - Meritor

Koehler, Brian – Southwest Research Institute

Warden, Rebecca – Southwest Research Institute

Comfort, Allen – US Army RDECOM/TARDEC

Dwornick, Bridget – US Army RDECOM/TARDEC

The meeting was called to order at 1430 EST.

1.0 Agenda Review

The agenda was reviewed

2.0 Approval of Meeting Minutes

Motion: Motion to approve prior minutes that have been posted for review on the TMC website.

1. 1/30/14 – Surveillance Panel Meeting - Detroit
2. 2/12/14 – Surveillance Panel Meeting - Pittsburg
3. 2/25/14 – Teleconference
4. 3/19/14 – Teleconference
5. 3/26/14 – Teleconference
6. 4/2/14 – Teleconference
7. 4/9/14 – Teleconference

Approved by voice vote unanimously. B. McGlone 1st, A. Comfort 2nd.

3.0 Hardware order Update

S. Heim shared an update on the hardware order. All material is on order and on track for a 14 week delivery time. First shipment is expected out of Gleason 8 weeks after material arrives. First shipment is expected around the 1st week of October. S. Heim will share an updated distribution plan with the group.

4.0 Test Data Discussion

Test data was shared from an additional lab, and falls generally in line with the other data to date. See data in minutes.

5.0 Rating Review

C. Prengaman shared that the raters at all labs have reviewed the pinions shared by Afton from the development testing. A first round of parts are complete, and a second round of parts is currently making its way from lab to lab. Data will be shared with the group once complete.

The parts will be discussed / reviewed at the July Workshop.

Overall comments so far include:

Ripple, Ridging, Spitting & Scoring are close enough to the D6121 definitions and can be rated as such. Wear needs improvements to the worded definition, primarily due to the lack of tooling marks due to the difference in manufacturing techniques.

C. Prengaman requested the labs discuss with their raters if there are any additional comments.

6.0 New Business

C. Prengaman shared that following the final draft of the procedure, lab visits will be conducted. The TMC will jointly audit the test stands during these visits to approve the new stands.

In conjunction with a lab visit, a build workshop will be held at a location yet to be determined. C. Prengaman volunteered Lubrizol as a site.

C. Prengaman requested that labs share good/bad dates for visits in the fall.

The Group also worked through the test procedure draft in consolidated many comments and tweaked the procedure.

Jay Chalkley was nominated as the voting member on the group replacing Thomas Gottwald. Approved via voice vote.

2.0 Adjournment

Motion to adjourn.

Respectfully Submitted

Chris Prengaman

L-37-1

Hardware Task Force

5/7/14

2:30-3:30

Agenda

- Meeting Minute Approval
 - 1/30 - Detroit
 - 2/12 - PRI
 - 2/25 - Teleconference
 - 3/19 - Teleconference
 - 3/26 - Teleconference
 - 4/2 - Teleconference
 - 4/9 - Teleconference
- Hardware Purchase Update – The Gleason Works
- Test Data
- Procedure Update
- Rating Review
- Lab Visits & Build Workshop

Rating Review

- 1st Round – All raters have reviewed
- 2nd Round – in progress
- Data to be reviewed
- Parts to be further discussed at July Workshop
- Wear definition needs refinement.
- Ripple, Ridging, Spitting, Scoring to be evaluated the same as D6121.
- Lubrited Hardware will be pending hardware

Lab Visits

- Following Final Draft of Procedure
- Group Lab Visit to all labs participating in initial tests.
- TMC Audit in conjunction to allow matrix tests to approve test stand

- Fall Visits – in conjunction with build workshop.
- Back to back visits.

Lab	Gear Batch	Gear Number	Run Number	Test Version	Hardware Type	Oil	CMIR	EOT Date	Housing	Pinion	Ridge	Ripple	Spitt	Score	Ring	Ridge	Ripple	Spitt	Score	Comments
D	3	001	3-110	Standard	Non-lubrited	134	83422	8/2/2013	G-1	6	7	9	9.9	10	7	7	10	9.9	10	Shutdown at 7hrs 2min for 11:20 min due to high left torque. Restarted and ran through full dur
D	3	007	3-116	Standard	Non-lubrited	134	95815	8/23/2013	G-3	7	6	9	9.9	10	7	6	9	2.0	10	2 broken teeth on ring.
D	3	008	3-117	Standard	Non-lubrited	134	95816	8/24/2013	G-1	7	6	10	9.9	10	7	7	10	9.9	10	Chipping on pinion.
D	3	1354684-18	3-138	Standard	Non-lubrited	134	90200, 90201, 90202	1/9/2014	-	7	7	10	3.0	10	7	7	10	3.0	10	Tooth breakage- test terminated at 7hrs 15 min. Chipping on pinion. Broken tooth on pinion. 2 b
D	3	1354684-16	3-139	Standard	Non-lubrited	134	90203, 90204, 90205	1/11/2014	-	6	5	6	9.8	10	7	5	7	9.9	10	Test temp out for 4 min [0.4%].
G	3	1354682-11	L-37-1-25	Standard	Non-lubrited	134	98625	1/29/2014	-	7	5	8	9.8	10	7	5	8	9.6	10	
D	3	1354684-8	3-150	Standard	Non-lubrited	152-2	98621	1/24/2014	-	7	9	9	9.9	10	7	10	10	9.9	10	Test oil temp out 5 min 40 sec [0.7%].
D	3	002	3-111	Standard	Non-lubrited	155-1	95818	8/9/2013	G-1	7	9	10	9.9	10	7	10	10	10.0	10	
D	3	004	3-113	Standard	Non-lubrited	155-1	95819	8/13/2013	G-3	7	9	9	9.9	10	7	10	10	10.0	10	Power failure at 4hrs 25min. Shutdown for 14:08 min. Restarted and completed.
D	3	006	3-115	Standard	Non-lubrited	155-1	95820	8/22/2013	G-2	7	9	9	9.9	10	7	10	10	9.9	10	
D	3	1354684-12	3-147	Standard	Non-lubrited	155	90207, 90208, 90209	1/20/2014	-	7	10	10	9.9	10	7	10	10	10.0	10	Test oil temp out for 5 min 40 sec [0.6%].
D	3	003	3-112	Standard	Non-lubrited	1-B	-	8/11/2013	G-2	7	8	8	9.9	10	7	10	10	10.0	10	
D	3	1354684-1	3-136	Standard	Non-lubrited	117	96475, 96476	1/7/2014	-	7	8	9	9.9	10	7	8	9	9.9	10	Shutdown for 4 min 41 sec, due to loss of process water (pump failure). Test temp out for 5 min
D	3	1354684-24	3-137	Standard	Non-lubrited	117	96477, 96478	1/9/2014	-	7	8	8	9.9	10	7	8	10	9.9	10	Test temp out for 4 min 20 sec [0.5%].
D	3	1354684-15	3-140	Standard	Non-lubrited	117	96474, 96479	1/12/2014	-	7	8	9	9.9	10	7	8	10	9.9	10	Test temp out for 5 min 20 sec [0.6%].
G	3	1354682-3	L-37-1-026	Standard	Non-lubrited	117	98624	2/10/2014	-	8	9	8	9.9	10	9	10	10	9.9	10	
B	3	1254654-20	361-273	Standard	Non-lubrited	117	96480	3/7/2014	-	9	5	6	9.9	10	9	10	10	10.0	10	

D	3	1354684-14	3-141	Canadian	Non-lubrited	134	98456	1/13/2014	-	6	6	7	9.0	10	6	6	7	9.9	10	Chipping on pinion. Test temp out for 8 min 41 sec [0.9%].
D	3	1354684-4	3-145	Canadian	Non-lubrited	152-1	90230, 90231, 90232	1/17/2014	-	7	9	10	9.9	10	7	10	10	10.0	10	Test oil temp out for 10 min 40 sec [0.8%].
D	3	1354684-7	3-146	Canadian	Non-lubrited	152-1	90233, 90234, 90235	1/19/2014	-	7	9	10	9.9	10	7	10	10	9.9	10	Test oil temp out for 7 min 59 sec [0.8%].
D	3	1354684-13	3-143	Canadian	Non-lubrited	117	98453	1/15/2014	-	7	10	10	10.0	10	7	10	10	10.0	10	Test temp out for 10min 59 sec [0.3%].
D	3	1354684-17	3-144	Canadian	Non-lubrited	117	98454	1/16/2014	-	7	9	10	9.9	10	7	9	10	9.9	10	Shutdown for 4 hours 31 min due to loss of process water (pump failure). Test temp out for 9 min

D	3	013	3-121	Standard	Non-lubrited	GL-5 off-the-shelf fluid with QPL #	-	9/5/2013	G-2/G-3	7	10	10	9.9	10	7	10	10	9.9	10	Test oil temp out for 3 min 19 sec [0.3%].
B	3			Standard	Non-lubrited	J2360 Fluid				8	7	9	9.9	10	8	8	10	10.0	10	
D	3	1354684-19	3-142	High Temp	Non-lubrited	Commercial fluid; expected to fail.	-	1/14/2014	-	5	5	6	7.0	10	5	5	6	9.8	10	Chipping on pinion.
D	3	1354684-9	3-148	High Temp	Non-lubrited	Commercial fluid; off-the-shelf; 75W-140	-	1/22/2014	-	7	9	10	9.9	10	7	9	10	9.9	10	
D	3	1354684-2	3-149	High Temp	Non-lubrited	Commercial fluid; expected to pass.	-	1/23/2014	-	7	9	10	9.9	10	7	10	10	10.0	10	

	Gear Batch	Gear Number	Run Number			Oil	CMIR	EOT Date	Housing	Pinion	Ridge	Ripple	Spitt	Score	Ring	Ridge	Ripple	Spitt	Score	Comments
D	3	005	3-114	Standard	Non-lubrited	1-B	-	8/14/2013	G-1	7	9	10	9.9	10	7	10	10	10.0	10	Test invalid due to multiple shutdowns. Did not run full 24 hours.
D	3	009	3-118	Standard	Non-lubrited	Unconfirmed Fluid: 1-B	-	8/26/2013	G-2	7	8	6	9.9	10	8	9	9	9.9	10	Pasty oil residue on ring and pinion. Not sludge. Test oil temp out for 4 min [0.4%].
D	3	010	3-119	Standard	Non-lubrited	Unconfirmed Fluid: 1-B	-	8/27/2013	G-3	7	6	7	9.9	10	7	9	10	9.9	10	Test oil temp out for 3 min 40 sec [0.3%].
D	3	011	-	Standard	Non-lubrited	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Unusual finish observed during CMM evaluation. Returned to Gleason because it had not been s
D	3	012	3-120	Standard	Non-lubrited	134	95817	8/29/2013	G-1	-	-	-	-	-	-	-	-	-	-	EOT at 18 hr 22 min. No rating; broken teeth on ring and pinion; test did not complete.




PASS 5 min 8 min 8 min 9.3 min 10 min 5 min 8 min 8 min 9.3 min 10 min

ASTM L-37-1 Hardware Taskforce Membership / Sign In List
Meeting Date: May 7th, 2014

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