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### **Committee D02 on PETROLEUM PRODUCTS AND LUBRICANTS**

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May 6<sup>th</sup>, 2010

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ASTM D02.B0.03 L-37 Surveillance Panel  
Members and Guests:

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

- **May 4<sup>th</sup>, 2010 L-37 Surveillance Panel Meeting**

Please direct any corrections or comments to my attention.

Sincerely,

Galen Greene, Chairman  
L-37 Surveillance Panel

**Report of Meeting**  
**L-37 Surveillance Panel Teleconference**

*May 4<sup>th</sup>, 2010*

Attendees:

Dana -	<b>Miller</b> , Guzikowski, Pappademous
SwRI -	<b>Koehler</b>
Lubrizol -	<b>Greene</b> , Hamilton, Fier, Gropp
Afton -	<b>Koglin</b>
Intertek-Parc -	<b>Smith</b>
TMC -	<b>Lind</b> , Parke
Chevron -	<b>Haire</b>
Arvin Meritor -	<b>McGlone</b>
AAM -	<b>Dharte</b>

Voting Members in **BOLD**

The meeting was called to order at 10:30 am EDT.

**1.0 Summary of Meeting Discussions**

**1.1 Action Item Review from 4/27 Meeting**

**ACTION ITEM 1 (Mr. Miller, Mr. Pappademous, and Mr. Guzikowski):** Dana is to pull reports on core hardness for the previous batches discussed during the April 20<sup>th</sup> meeting (and any others available). Dana is to present this data at the next L-37 meeting and give a recommendation on how to proceed. **COMPLETE, report attached.**

**1.2 Review of the 2009 Material**

Mr. Miller distributed and presented a report on material properties from several previous hardware batches (attachment 1). He commented that having high core hardness and good case depth is beneficial to this particular application. Several members noted that the figures in the attachment were different than the figures we reviewed over the last few weeks. The figures discussed at the last meetings showed a possible correlation of DI to poor performance, however, the updated data shows less of a correlation.

Mr. Koglin asked if we could achieve the 2005 case depth and core hardness. Mr. Pappademous commented that we really can't be sure until the material is tested after production. Mr. Miller recommended that this pilot batch be manufactured in furnace 5.

The group reviewed the figures and discussed the possibility of Dana reproducing the 2005 number with the 2009 material. The following motion was then made:

**Motion #1** → Mr. Koglin/2<sup>nd</sup> Mr. Koehler – Motion to move forward with the 2009 steel and build 24 gear sets with Dana standard lapping, Dana standard shot peening, and Mr. Miller's redesigned/optimized geometry. Dana is to target a case depth of >0.06" and a pitch core hardness of >40 HRC. Dana should process enough material to have 24 usable gear sets. The motion passed with a vote of Yes-6, No-0, Abstentions-1.

It was asked if we should just proceed with the entire batch when considering the time that it will take to run through an additional pilot batch. The group came to consensus that, at this time, we only want to proceed with the pilot batch.

The only other open item to discuss was how to approach the Lubrifying. Due to time constraints, it was decided to bump this discussion to the next meeting.

## 2.0 Adjournment

Meeting adjourned at 11:40 pm EDT

Respectfully submitted,

Galen Greene  
L-37 Surveillance Panel Chairman

ASTM L37 Pinion Gear Material and Heat Treat Summary

Year	Pinion Heat Code	Part Number	Lab Report Number	Material	Ideal Diameter	Heat Treat Furnace #	Pitch Effective Case Depth	Root Effective Case Depth	Pitch Core Hardness	Root Core Hardness	Compressive Residual Stress @ .003"
2004	V1L351	060GP105	Y811	8822	2.55"	5	.057"	.036"	39 HRC	31 HRC	No record.
2005	V1L417	060GP105	A879	8625	2.35"	5	.064"	.030"	43 HRC	34 HRC	No record
	V1L417	060GP105	A879	8625	2.35"	5	.062"	.048"	41 HRC	34 HRC	No record
2006	B6L566	060GP104	C240	8625	2.134"	5	.055"	.030"	35 HRC	30 HRC	-179 KSI
	B6L566	060GP104	C241	8625	2.134"	5	.054"	.029"	39 HRC	29 HRC	-195 KSI
	B6L566	060GP104	C251	8625	2.134"	5	.056"	.031"	35 HRC	28 HRC	
	B6L566	060GP104	C566	8625	2.134"	5	.053"	.028"	36 HRC	30 HRC	
	B6L566	060GP104	FW36-2007 1T	8625	2.134"	5	.054"	.031"	35 HRC	30 HRC	
	B6L566	060GP104	FW36-2007 7CA	8625	2.134"	5	.053"	.027"	34 HRC	28 HRC	
	B6L566	060GP104	FW36-2007 ON	8625	2.134"	5	.053"	.026"	38 HRC	31 HRC	
2008	V1L500	060GP104	FW82-2008	8625	2.42	2	.057"	.031"	41 HRC	32 HRC	-155 KSI
	V1L500	060GP104	FW79-2008	8625	2.42	2	.058"	.038"	38 HRC	31 HRC	-148 KSI
	V1L500	060GP104	FW77-2008	8625	2.42	2	.054"	.037"	38 HRC	31 HRC	
	V1L500	060GP104	FW74-2008	8625	2.42	2	.065"	.033"	44 HRC	35 HRC	
	V1L500	060GP105	FW73-2008	8625	2.42	2	.059"	.044"	41 HRC	31 HRC	-168 KSI
	V1L500	060GP105	FW69-2008	8625	2.42	2	.056"	.033"	38 HRC	31 HRC	
	V1L500	060GP105	FW72-2008	8625	2.42	2	.060"	.041"	43 HRC	34 HRC	
	V1L500	060GP105	FW71-2008	8625	2.42	2	.065"	.046"	43 HRC	35 HRC	
2009	V1L528	060GP105	F391	8625	2.36	5	.059"	.033"	39 HRC	30 HRC	No record
	V1L528	060GP105	F457	8625	2.36	5	.056"	.032"	37 HRC	29 HRC	