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Committee D02 on PETROLEUM PRODUCTS AND LUBRICANTS

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November 14, 2007

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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:

- **November 7, 2007 L-37 Surveillance Panel Meeting conducted at the PRI Headquarters, Apollo Room, Warrendale, PA.**

Please direct any corrections or comments to my attention.

Sincerely,

Donald T. Bartlett, Chairman

L-37 Surveillance Panel

Attachments

**Report of Meeting
L-37 Surveillance Panel
Warrendale, PA
PRI Apollo Room
November 7, 2007**

Sign-in/Review of Agenda & Membership: The meeting was called to order at 1:38 pm. The sign-in sheet is included as ***Attachment # 1***.

Action Item # 1 ⇒ A request by B0.03 Chairman Mr. Gropp. The respective panel chairmen are asked to reconfirm and update their panel **voting** and **non-voting/membership lists** to accurately reflect the current participating membership since there have been so many changes with respect to commitments, job and role responsibilities in this industry.

A review of the Agenda was performed with no changes recommended. ***Attachment # 2*** represents a PowerPoint presentation the chairman used for the meeting.

Approval of Minutes The minutes of the October 25th Panel Teleconference call were reviewed.

Motion # 1 ⇒ Mr. Smith, Second ⇒ Mr. Koehler – Approve the October 25th Surveillance Panel meeting minutes as written. The motion passed unanimously.

Summary of Meeting Discussions

- Next Hardware Order – 2008

Note: Joining us via teleconference was Mr. Kreinbring & Mr. Bird from Dana. Also joining us was Mr. Rose from Afton.

- **See Attachment # 2, slide # 4, and 5 for details.**
 - The chairman mentioned that there is a planned laboratory Hardware TF participation in upcoming facility visits (Ft. Wayne, Maumee, and Lugoff) to discuss detailed processes/plans for the new hardware orders. The three facility visits was also strongly encouraged by Dana engineering/management.
 - Procurement of the heat of steel and forgings could take as long as 6 months with another 1 to 2 months to get the gears produced t and axles assemble. Total time for customers to receive axles for matrix testing could be as far away as 7-9 months.
 - The labs were reminded that binding PO's were due to Mr. Ojanen by Friday, November 16, 2007.
 - Retrofitting the B6L566 lubrited axles will take substantial time because Dana can only bench rebuild slightly over 30-35 axles per week.

- **See Attachment # 2, slide # 6 and 7 for details.**
 - Both non-lubrited and lubrited (new and retrofit) ring and pinions will be made of the same heat of steal, forged at the same time, cut at the same time, etc. The only difference is that the lubrited will need to be phosphate coated using the "Alternate" supplier as discussed and approved in previous minutes.

- hardware batch approval matrix testing.
 - **Non-lubrited axles** – run a 44-test matrix, only 3 labs ordered hardware & will participate.
 - **Lubrited retrofit** – run a 44-test matrix, all 4 labs ordered hardware & will participate.
 - **Lubrited new axles** - the general consensus was that the new lubrited axle batch assemblies would be the same batch. Since only 2 labs are ordering completely new gears, a small subset of 6 tests is planned at each of the two labs. Refer to slide 7 for matrix oils and test type required.
 - If this data lines up with the retrofit axles, the labs can likely hold off from running additional tests. Mr. Gropp mentioned that as a test sponsor he has concerns about limiting the amount of runs on the new hardware since the n-size might be too small to identify severity concerns. He agrees the 6 tests represent a good first step but doesn't want the panel to get ahead of themselves and feel this is enough to approve at this point.
- Mr. Gropp indicated that he would be presenting SAE and LRI updates to the respective committees on our progress to this point and future timing.

- Updated L-37 RCMS Pinion Targets

Mr. Gropp reported some concerns on the updated numbers for wear. He's sensitive to the fact that the rating definition for wear is very much tied to the gear cutting/surface finish. We know process changes have resulted in different surface textures on recent batches.

Mr. Lind reminded the panel that he wouldn't be too concerned because the n-size was originally small (6 to 9) for most gears and is now 20 and above.

For the most part, Mr. Lind feels that the data mostly reflects improvement. However gear 17 is an example of the opposite being true. With respect to Ridging distress, the ratings initially ranged from 7 to 10. The statistically acceptable range would be 8 to 10. Most of the data is centered around the value of 9 with the other half being 8's and 10's. Only one of the ratings was a 7. Mr. Lind mentioned that more pinions will be coming up for changing targets because the n-sizes are approaching 20.

Mr. Rose suggested that if the standard deviation gets too wide, why not throw out the ring & pinion. **Mr. Lind** commented, no, it needs to be in the mix. It is a real word reality.

Motion # 2 ⇒ Mr. Lind, second ⇒ Mr. Koglin) – The update targets are accepted as presented. The motion passed unanimously with a vote of 7, 0, 0.

- LTMS Change proposal with respect to Pitting/Spalling will be discussed / delayed for a future meeting.

Motion # 3 ⇒ Ms. Agusti, second ⇒ Mr. Smith. Move to adjourn the meeting at 2:21. Motion passed unanimously.

Respectfully submitted,



Donald T. Bartlett
L-37 Surveillance Panel Chairman

ASTM L-37 Surveillance Panel Membership/Mailing List

Meeting Date: November 7, 2007

Initials*	Name	Voting Status	Company Name & Address	Phone/Email Info
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	Buitrago, Juan	Voting	Chevron Oronite Company 100 Chevron Way Richmond, California 94802	Phone: 510-242-1161 Fax: 510-242-3392 E-Mail: jabu@chevrontexaco.com
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	Comfort, Allen	Voting	AMSTA-TR-D/210 Tank Automotive & Armament 6501 East 11 Mile road Warren, MI 48397-5000	Phone: 586-574-4225 Fax: 586-574-4244 E-Mail: allen.s.comfort@us.army.mil
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* Initial to indicate attendance at subject meeting

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ASTM L-37 Surveillance Panel Membership/Mailing List





Meeting Date: November 7, 2007

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	Huron, John	Non Voting	Chevron Oronite Company LLC Suite 210 San Antonio, Texas 78228-1374	Phone: 210-731-5609 Fax: 210 731 5699 E-Mail: huro@chevrontexaco.com
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	Kanga, Percy	Non Voting	ExxonMobil Research & Engineering 600 Billingsport Road Paulsboro, New Jersey 08066	Phone: 856-224-2094 Fax: 856-224-3613 E-Mail: percy.r.kanga@exxonmobil.com

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ASTM L-37 Surveillance Panel Membership/Mailing List

Meeting Date: November 7, 2007

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ASTM L-37 Surveillance Panel Membership/Mailing List

Meeting Date: November 7, 2007

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Meeting Date: November 7, 2007

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	Sullivan, Bill	Non Voting	William T. Sullivan, Inc. 5 Scheiber Drive Brick, NJ 08723	Phone: 908-930-3512 Fax: 267-220-7750 E-Mail: wsullivan@comcast.net
	Vettel, Paula	Voting	D. A. Stuart Company 4580 Weaver Parkway Warrenville, Illinois 60555	Phone: 630-393-8859 Fax: 630-393-8577 E-Mail: pvettel@dstuart.net
	Zakarian, Jack	Non Voting	Chevron Products 100 Chevron Way Richmond, CA 94802	Phone: 510-242-3595 Fax: 510-242-3758 E-Mail: jaza@chevron.com
SH	Higuchi, Sam	NV	Same as Cory Koglin	Phone: 804-788-5375 Fax: 804-788-6358 E-Mail: Samuel.Higuchi@AflonChemical.com
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				Phone: Fax: E-Mail:
				Phone: Fax: E-Mail:

Change on presentation


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Lubrizol

L-37 Surveillance Panel
 PRI Headquarters,
 Warrendale, Pa.
 November 7, 2007

Donald Bartlett



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L-37 SP Agenda

- I. Call to Order, Agenda & Membership Review
- II. SP Minutes to Approve:
 - ✓ October 25, 2007 Teleconference Meeting
- III. 2008 Green, Lubrified & Retrofit Lubrified Hardware Order
- IV. Updated L-37 RCMS Targets – TMC
- V. New Business
- VI. Adjournment

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L-37 Surveillance Panel Voting Members

Donald Bartlett	The Lubrizol Corporation (Chairman)
Tom Bryson	Volvo Power Train Corporation
Juan Buitrago	Chevron Oronite Company
Allen Comfort	AMSTA-TR-D/210 US Army Tacom-Tardec
John Dharte	American Axle & Manufacturing
Brian Koehler	Southwest Research Institute
Cory Koglin	Afton Chemical Company
Don Kreinbring	Dana Corporation
Don Lind	ASTM Test Monitoring Center
Jim Linden	GMR Research and Development
Thelma Marougy	Eaton Corporation
Bruce McClone	ArvinMeritor Materials Engineering
Salvatore Rea	Infineum
Dale Smith	PARC Technical Services
Paula Vettel	D.A. Stuart Company

Total 15 Voting Members

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Next Hardware Order – 2008

- ✓ Dana to provide industry labs and official quote by October 29, 2007
- ✓ Cost and timing to order new Non-Lubrited axles is \$ 992.00
- ✓ Cost and timing to order new Lubrited axles is
 - ✓ Retrofit of Ring and Pinion and other hardware for B6L566 batch is at no cost to labs. Labs to pay shipping one way.
 - ✓ New Lubrited axle assemblies is \$ 1005.00
 - ✓ All lubrited axles to use the "Alternate" lubriting process
- ✓ Dana to insure that they purchase one heat of steel for all non-lubrited and lubrited ring and pinions being ordered.
- ✓ Dana to "same batch lot" order all associated parts for new axle assembly builds.

Next Hardware Order – 2008, con't

- ✓ Labs to provide Dana and TMC a final count of axles that they will be ordering by Friday, November 2
- ✓ TMC to report to panel November 7/Panel confirm matrix testing
 - » Total number of axles being retrofit. = 975
 - » Total number of non-lubrited and lubrited new complete axle assemblies ordered. Green = 898 Lub = 234
 - » The number of labs that are ordering the retrofit and all new axle assemblies.
 - Retrofit lub = 4 labs
 - Green new = 3 labs
 - Lub new = 2 labs
- ✓ Labs to provide binding PO's by November 16
- ✓ Before production begins, the Lab HTF and Dana to meet, review/correct documents, make facility visits

Hardware Approval Matrix Guidelines (October 25 meeting)

- ✓ Non-lubrited hardware – conduct the standard 44-test matrix.
- ✓ Lubrited hardware – general consensus was retrofit and all new axle assemblies would be the same batch
- ✓ Motion # 2/Oct 25 SP by Mr. Gropp, second by Mr. Koehler:
 - » What ever the bulk of the hardware build is (retrofit or all new assembly builds); the labs will conduct the standard 44-test matrix.

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Hardware Approval Matrix Guidelines, con't

- ✓ For the smaller subset of lubrited hardware builds, each lab who orders a portion of this smaller subset will conduct 6 more tests as follows.
 - » 1 Standard test on TMC 127
 - » 1 Standard test on TMC 151
 - » 1 Standard test on TMC 152
 - » 1 Standard test on TMC 153
 - » 1 Canadian test on TMC 152
 - » 1 Canadian test on TMC 153
- ✓ It was further stipulated that: If only one lab orders the smaller subset of hardware, this lab must run the above six tests in duplicate.

L-37 SP Agenda

- I. Call to Order, Agenda & Membership Review
- II. SP Minutes to Approve:
 - ✓ October 25, 2007 Teleconference Meeting
- III. 2008 Green, Lubrited & Retrofit Lubrited Hardware Order
- IV. Updated L-37 RCMS Targets – TMC
- V. ~~LTMS Change Proposal With Respect to Pitting/Spalling~~
- VI. New Business
- VII. Adjournment



SAVE FOR ANOTHER TIME TO DISCUSS

Attachment

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UPDATED L-37RC PINION TARGETS

PINION 8						
PARAMETER	CURRENT			NEW		
	N	MEAN	S.D.	N	MEAN	S.D.
Wear	9	7.7	0.78	27	7.0	0.60
Rippling		7.6	0.67		7.8	0.89
Ridging		7.9	1.00		7.7	0.78
Spitting		9.91	0.100		9.9	0.090

PINION 13						
PARAMETER	CURRENT			NEW		
	N	MEAN	S.D.	N	MEAN	S.D.
Wear	9	8.2	0.89	20	7.5	.60
Rippling		9.2	0.89		9.6	0.67
Ridging		9.9	1.00		9.5	0.56
Spitting		9.97	0.078		9.92	0.089

PINION 17						
PARAMETER	CURRENT			NEW		
	N	MEAN	S.D.	N	MEAN	S.D.
Wear	9	6.0	1.11	23	5.7	0.78
Rippling		8.6	0.67		9.0	1.11
Ridging		7.4	0.67		8.1	1.00
Spitting		5.78	0.867		6.1	1.00

PINION 18						
PARAMETER	CURRENT			NEW		
	N	MEAN	S.D.	N	MEAN	S.D.
Wear	9	5.7	0.78	28	5.6	0.67
Rippling		9.0	1.11		9.1	1.00
Ridging		4.8	0.89		4.9	1.00
Spitting		9.88	0.089		9.87	0.078

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UPDATED L-37RC PINION TARGETS

PINION 19							
PARAMETER	CURRENT				NEW		
	N	MEAN	S.D.		N	MEAN	S.D.
Wear	9	7.0	1.11		20	6.1	0.56
Rippling		9.6	0.67			9.3	0.78
Ridging		7.6	0.67			7.5	0.56
Spitting		9.92	0.089			9.9	0.056

PINION 27							
PARAMETER	CURRENT				NEW		
	N	MEAN	S.D.		N	MEAN	S.D.
Wear	9	5.7	0.78		21	5.6	0.67
Rippling		8.4	0.67			8.4	0.67
Ridging		5.6	0.67			5.3	0.78
Spitting		9.8	0.111			9.66	0.20

34							
PARAMETER	CURRENT				NEW		
	N	MEAN	S.D.		N	MEAN	S.D.
Wear	6	6.3	0.78		22	6.4	0.67
Rippling		6.7	1.44			6.7	0.78
Ridging		8.0	1.11			7.5	0.56
Spitting		9.93	0.078			9.90	0.056

PINION 35							
PARAMETER	CURRENT				NEW		
	N	MEAN	S.D.		N	MEAN	S.D.
Wear	6	6.5	0.56		23	6.7	0.78
Rippling		4.5	1.21			4.8	0.89
Ridging		7.5	0.56			7.7	0.78
Spitting		9.88	0.089			9.90	0.056

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UPDATED L-37RC PINION TARGETS

	PINION 37					
PARAMETER	CURRENT			NEW		
	N	MEAN	S.D.	N	MEAN	S.D.
Wear	6	6.7	0.78	20	7.7	0.78
Rippling		9.3	0.78		9.2	0.89
Ridging		9.8	0.89		9.4	0.67
Spitting		9.92	0.089		9.91	0.056

	PINION 43					
PARAMETER	CURRENT			NEW		
	N	MEAN	S.D.	N	MEAN	S.D.
Wear	6	6.5	0.56	22	6.8	0.89
Rippling		9.5	0.56		9.3	0.78
Ridging		9.2	0.89		9.0	0.56
Spitting		9.92	0.089		9.90	0.056

	PINION 47					
PARAMETER	CURRENT			NEW		
	N	MEAN	S.D.	N	MEAN	S.D.
Wear	6	6.0	1.10	20	6.2	0.89
Rippling		8.7	0.78		8.7	0.78
Ridging		4.8	0.89		5.0	1.12
Spitting		9.92	0.089		9.88	0.089

	PINION 54					
PARAMETER	CURRENT			NEW		
	N	MEAN	S.D.	N	MEAN	S.D.
Wear	6	6.5	0.56	24	6.8	0.89
Rippling		9.3	0.75		9.2	0.89
Ridging		8.8	0.92		8.8	0.89
Spitting		9.90	0.111		9.90	0.056

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UPDATED L-37RC PINION TARGETS

PARAMETER	PINION 56					
	CURRENT			NEW		
	N	MEAN	S.D.	N	MEAN	S.D.
Wear	6	7.3	0.74	20	7.2	0.89
Rippling		8.2	1.30		8.9	1.00
Ridging		8.2	1.30		8.6	0.67
Spitting		9.90	0.111		9.88	0.056

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