

L-37 Surveillance Panel Teleconference Minutes Tuesday, 10/21/2008

Attendees:

Dana -	Basset, Miller, Guzikowski
SwRI –	Koehler
Lubrizol –	Bartlett, Graziano
Afton -	Koglin
Park -	Smith
TMC -	Lind
ArvinMeritor	McGlone (joined after Action Item reviews)

6 voting members

The L-37 Surveillance Panel teleconference call was directed to convene at this time by the Panel at its October 16th teleconference meeting to review testing options and progress to date.

Agenda:

- Approve the October 16, 2008 SP teleconference meeting minutes.
- Review pending action items.
- Review last round of SwRI modified test condition matrix.

Approval of Minutes

Motion #1: Mr. Koglin motioned/ Second Mr. Smith – That the October 16, 2008 meeting minutes be approved as written. Motion passed unanimously with a voice vote of 6-0-0.

Retrofit Lubrified Hardware – Review and Discussion

Prior Action Item Review & Update:

- **Dana/Labs** - At the September 4 panel teleconference call the labs were directed to convene and draft a letter to Dana representatives specific to laboratory questions and issues that were directed to Mr. Brazeau, Miller, Ramsey, Fett and Guzikowski. Most questions have been answered, still waiting on Dana Root Cause Analysis for testing materials and specifications summary. **Open**

- **Dana/Labs** - The L-37 Surveillance Panel is requesting Dana to immediately begin the process of manufacturing a new batch of pinions and rings for use in the L-37 test. This hardware should be manufactured using the same specifications for metallurgy, hardness, case depth, surface profile, etc. as was used in the V1L417/P4L792 batch of non-lubricated hardware.
The intent of the Panel is that a portion of this batch will remain non-lubricated, and that a portion of this batch will be lubricated and a sufficient quantity of pinions and rings should be manufactured to allow for the V1L500/P4T813 batch of non-lubricated hardware to be retrofitted with these new pinions and rings, as well as for a sufficient quantity to be lubricated so that they may be used to retrofit the V1L500/P4L870A batch of lubricated hardware (both the new and the retrofitted subsets of this batch) with these new pinions and rings.

1. All companies who intend to purchase a portion of this new batch of pinions and rings are to provide Dana with an initial indication of the size of their order no later than the end of the business day on Friday, October 24.
2. Formal purchase orders are to be provided to Dana no later than the end of the business day on Friday, October 31.
3. Dana is to provide the Surveillance Panel with a projected date for the availability of this hardware no later than the end of the business day on Friday, November 1, 2008.

The Chairman reported that he has made phone calls to Mr. Ramsey's work and cell number and a direct email with no response to date. Miller offered to contact Gary Smallbach as well. Mr. Koglin stated that he is in a training class all next week and needs a timely quote to tender PO's to meet the panel-imposed deadline.

There was a discussion by labs with respect to ordering extra new hardware sets. The initial lab estimate 12 months ago may have changed based on lab needs 1 year later. There were differing opinions expressed by the respective labs. **Open.**

Discussion and Comments with 11 % Contact Stress Reduction – Retrofit Lubrified

1. **Gear Conditioning Phase** will be conducted per the Standard, no change.
2. **Gear Test Phase** – Test alternate conditions will be provided by Dana:
 - o 80 wheel rpm and 11 % Contact Stress Reduction.
 - o Axle oil temperature will be the same as a standard test.
 - o Test length will be 24 hours of on-test time.

During the October 16th, Panel meeting, it was agreed that SwRI would continue to run 1 test each on TMC 152-1 & 155 for our next focus. The torque load at pinion tooth surface contact would be reduced to 11% (1287.5 lb-ft at each wheel for the set point).

Bruce McGlone joined the teleconference at this point. Now we have 7 voting members.

Koehler – Reviewed the testing results for both oils that were conducted on non-polished toplands with the build pattern to flank neutral.

<u>TMC 152-1 (by definition pass oil)</u>			
<u>Ring</u>		<u>Pinion</u>	
Wear	8.0	Wear	7.0
Rippling	9.0	Rippling	9.0
Ridging	8.0	Ridging	8.0
Pit/Spall	9.9	Spitting	9.9
Scoring	10.0	Scoring	10.0

Note: No pinion tooth surface cracking or broken teeth.

TMC 155 (by definition pass oil)

<u>Ring</u>		<u>Pinion</u>	
Wear	8.0	Wear	7.0
Rippling	9.0	Rippling	9.0
Ridging	9.0	Ridging	8.0
Pit/Spall	9.9	Spitting	9.9
Scoring	10.0	Scoring	10.0

Note: No pinion tooth surface cracking or broken teeth.

Attachment 1 is all testing data reported to date. Recall if you will, there was a motion at the October 16th Panel meeting made by Koglin/second Koehler – to instruct Dana to assemble 4 more axles using the ring and pinion that has non-polished toplands and built to flank neutral pattern. Axles were to be shipped to SwRI for testing at the '14 percent' contact stress reduction option.

Today, Miller confirmed that he has seen the contact pattern build information. Guzikowski confirmed with Horvath that Dana will be shipping the 4 axles on Wednesday, October 22.

There was much discussion with respect to starting the 44-test matrix at 11 % reduction or taking time to see some runs at 14 % reduction. Koglin expressed his concern that he wanted to see some runs on 14% reduction. Koehler and Lind confirmed that we should run only TMC 134 and then look & decide if we proceed to TMC 153-1. Koehler indicated he would run the TMC 134 as soon as he received the axles and go from there. Bartlett reiterated that the prime directive is to keep moving forward, we are already behind in our objective.

New Lubrited Hardware – Discussion


Continued testing was put on hold by Panel as we focus the attention on the retrofit hardware first.

Non- Lubrited Hardware – Discussion

Continued testing was put on hold by Panel as we focus the attention on the retrofit hardware first.

- **Next Meetings will be a Surveillance Panel Teleconference**
 - **Meeting Thursday, October, 30, 2008 at 10:00 a.m. EDT.**
 - **Call in info is 608-250-0194, code 324160.**

Meeting adjourned at 10:42 a.m.


Donald T. Bartlett, L-37 SP Chairman

V1L500/P4L870A NEW LUBRITED RETROFIT MATRIX RESULTS

Attachment 1
 Page 10/11
 Reference 6-37
 10/2/08

Testkey	Lab	STD	Run	Oil	VAL	Pinbat	DTCOMP	Pwear	Pridg	Prip		Rwea	Rridg	Rrip	Rspit	fpcrat	Ipcrat	B/Lash	Mfg. Min	KUSA	COM1	Phase	
										p	p												
63271	B	191	2658	155	AG	V1L500	20080801	7	9	8	9.5	7	10	10	9.8	0	2	0.005	ASTM-0002				
58906	D	3A	945	155	AG	V1L500	20080805	7	8	10	9.9	8	10	10	9.9	1	2	0.005	ASTM-0007				
58912	A	4	225	155	MG	V1L500	20080803	6	9	8	2	8	10	9	9.9	0	2	0.008	ASTM-0009	Broken Tooth			
61857	E	1	912	155	MG	V1L500	20080808	7	9	9	2	7	9	9	9.9	1	2	0.006	ASTM-0016	Broken Teeth			
63638	B	191	2659	127	AG	V1L500	20080802	6	5	9	9.9	7	6	10	9.9	1	2	0.006	ASTM-0010				
59291	D	3A	944	127	AG	V1L500	20080803	7	8	7	9.9	8	10	10	9.9	1	2	0.005	ASTM-0003				
49193	E	1	910	127	LG	V1L500	20080801	7	9	7	9.9	7	9	9	9.9	1	2	0.004	ASTM-0012				
67366	A	4	224	127	AG	V1L500	20080801	7	8	5	9.9	8	9	8	9.9	1	2	0.006	ASTM-0013				
67304	B	191	2662	152-1	AG	V1L500	20080806	7	8	8	2	8	9	10	9.9	0	2	0.005	ASTM-0006				
63260	D	3A	946	152-1	MG	V1L500	20080806	7	8	9	2	8	10	9	9.9	1	2	0.005	ASTM-0011				
67385	A	4	227	153-1	AG	V1L500	20080805	7	8	7	3	7	10	10	9.9	0	2	0.005	ASTM-0001				
67314	B	191	2663	153-1	AG	V1L500	20080807	6	5	8	4	6	5	9	9.9	1	2	0.006	ASTM-0014				
64143	D	3A	948	153-1	AG	V1L500	20080811	7	8	9	9.9	8	9	10	9.9	1	2	0.007	ASTM-0015				
63279	E	1	915	153-1	NN	V1L500	20080815	7	9	9	9.9	7	10	9	9.9	0	2	0.006	ASTM-0004	20 HR Test/Cracked Tooth			
63280	E	1	916	153-1	NN	V1L500	20080820	6	8	8	2	6	7	9	9.9	0	2	0.005	ASTM-0008	18 HR Test/Broken Teeth			
64145	D	3A	960	153-1	NN	V1L500	20080827	7	8	8	2	8	10	9	9.9	3	2	0.006	ASTM-0031	Modified Build / Broken Tooth			
67348	D	3A	961	153-1	NN	V1L500	20080903	7	8	7	9.9	8	10	10	9.9	2	2	0.007	ASTM-0035	Modified Build			
67367	A	4	236	134	NN	V1L500	20080906	7	9	5	8	8	9	10	9.9	2	2	0.007	ASTM-0033	7% contact stress reduction / 24 hr. test			
67387	A	4	234	153-1	NN	V1L500	20080904	6	9	8	8	8	10	10	9.9	2	2	0.008	ASTM-0029	7% contact stress reduction / 24 hr. test			
67388	A	4	237	153-1	NN	V1L500	20080910	7	9	8	7	7	10	10	9.9	2	1	0.005	ASTM-0037	7% contact stress reduction / 24 hr. test / Broken teeth / Surface cracks			
61862	A	4	238	152	NN	V1L500	20080912	6	7	8	9.9	6	9	9	9.9	2	2	0.005	ASTM-0041	7% contact stress reduction / 24 hr. test			
67386	A	4	233	153-1	XN	V1L500	20080901	6	9	8	2	6	9	9	9.9	1	2	0.007	ASTM-0025	7% contact stress reduction / 60 hr. test aborted			
64182	A	4	232	153-1	XN	V1L500	20080829	7	9	8	9.9	8	10	10	10	1	2	0.006	ASTM-0021	7% contact stress reduction / 8 hr. test aborted. Shaft U joint failure			
61865	A	4	239	155	NN	V1L500	20080916	7	9	9	9.8	7	10	9	9.9	2	2	0.008	ASTM-0045	7% contact stress reduction / 24 hr. test			
67368	A	4	134	NN	V1L500			6	7	8	6	6	7	9	9.7						11% contact stress reduction load / 24 hr. test		
67389	A	4	153-1	NN	V1L500			7	9	9	8	8	9	10	9.9						11% contact stress reduction load / 24 hr. test		
63284	A	4	152-1	NN	V1L500			7	8	9	9.9	8	8	9	9.9						11% contact stress reduction load / 24 hr. test		
63281	A	4	155	NN	V1L500			7	8	9	9.9	8	9	9	9.9						11% contact stress reduction load / 24 hr. test		

one

two

three

four

five