

**Report of Meeting  
ASTM SECTION B0.03  
Automotive Gear Lubricants and Fluids  
PRI Headquarters  
Warrendale, PA  
June 15, 2005**

**CALL TO ORDER**

Mr. Sullivan, Chairman, called the meeting to order at 3:57 pm.

**AGENDA**

The agenda is shown as Attachment 1. No additional items were added. The attendance list is shown as Attachment 2.

**OPENING COMMENTS**

None at this meeting.

**MEMBERSHIP**

Michael Duddy replaces Don Krieinbring as the representative for Dana. The complete membership list is included as part of Attachment 2.

**APPROVAL OF MINUTES**

Minutes of the November 2004 meeting was approved with one change. In the opening comments section, "GL-5" should be "GL-5" plus. The minutes will be modified to reflect this change.

**REVIEW SCOPE AND OBJECTIVES**

The sections scope and objectives were review. No changes were made. Attachment 3 shows the current scope and objectives.

## SURVEILLANCE PANEL REPORTS

### L-33-1

Mr. Smith presented the panel report. The hardware situation is good. All labs have adequate supplies of test axles. Usage has been lower than expected. In the future the panel will be focused on developing acceptable replacement hardware (2006 time frame). The current hardware used by the labs will not longer be available in the near future. There exists a low level severity issue in the industry which will be investigated. The report was accepted without changes.

### L-37

Mr. Bartlett presented the panel report. The report is shown as Attachment 4. The report was accepted without changes.

### L-42

Mr. Koglin presented the panel report. The report is shown as Attachment 5. The report was accepted without changes.

### L-60-1

Mr. Schenkenberger presented the panel report. The report is shown as Attachment 6. The report was accepted without changes.

### Cyclic Durability

Mr. Koehler presented the panel report. The report is shown as Attachment 7. The report was accepted without changes.

### Oil Seal Compatibility

No report was presented at this meeting.

## TASK FORCE REPORTS

### Test Rating

Mr. Koehler presented the task force report for Mr. Sanchez. The report is shown as Attachment 8.

### PM-2

Mr. Akucewich presented the task force report. The task force met one time since the last section meeting. The group is progressing on defining the tests and limits. One problem exists with the development of the specification. There is no pitting test readily available for use in the specification. If the section wants the specification to be completed in a reasonable time frame, the pitting requirement needs to be dropped. The task force agreed to ask the SAE if the pitting requirement can be dropped. The report was accepted without changes.

## GL-5

Mr. Buitrago presented the task force report. The group has been working on the draft specification. The draft is ready to go to ballot. The group will now focus on completing the research report and getting the draft ballot reviewed by a facilitator. The target is to go to ballot in fall 2005. The report was accepted without changes.

## GEAR OIL CLASSIFICATION PANEL

Mr. McGlone presented the panel report. The panel met once in the last 6 months. The group reports the following:

- PG-2 – waiting for SAE/TC-3 feed back to determine direction,
- PM-1 – waiting for SAE/TC-3 feedback to decide if needed,
- PM-2 – waiting for SAE/TC-3 feed back to see if a pitting test is required,
- GL-5 – progressing and going to ballot soon,
- New viscosity grades discussed,
- An update meeting to SAE 2360 will take at the August LRI,
- The group discussed the idea of creating a gear oil candidate database to be used to track industry trends and to aid in the solution of testing problems. The TMC will present a proposal on this at an upcoming meeting,
- No major surveillance panel issues to report.

The report was accepted without changes.

## OLD BUSINESS

### PG-2 SAE Letter

Mr. Sullivan will send the letter to SAE for discussion at the next TC-3 meeting.

## NEW BUSINESS

No new business.

## NEXT MEETING DATE/LOCATION

The next B0.03 section will take place at the November 2005 LRI meetings in Warrendale, PA.

## REPORT TO B03/SAE

Mr. Sullivan's report to the B meeting at ASTM week in June 2005 is included as Attachment #9.

**ADJOURNMENT**

The meeting was adjourned at 4:50 p.m.

Sincerely,

A handwritten signature in black ink, appearing to read "Edward Akucewich". The signature is fluid and cursive, with a long horizontal stroke at the end.

Edward S. Akucewich, Secretary  
ASTM Section B0.03 Gear Lubricants and Fluids

**ASTM SECTION B0.03  
AUTOMOTIVE GEAR LUBRICANTS AND FLUIDS  
PRI, Warrendale, PA  
June 15, 2005**

- 1 Opening Comments
- 2 Membership
- 3 Approve Minutes
- 4 Review Scope and Objectives
- 5 Surveillance Panel Reports
  - 5.1 L-33-1
  - 5.2 L-37
  - 5.3 L-42
  - 5.4 L-60-1
  - 5.5 Cyclic Durability
  - 5.6 Oil Seal Compatibility
- 6 Task Force Reports
  - 6.1 Test Rater
  - 6.2 PM-2
  - 6.3 GL-5
- 7 Gear Oil Classification Panel Report
- 8 Old Business
- 9 New Business
- 10 Next Meeting Date/Location
- 11 Report to B03/SAE

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BO.03 SECTION MEETING

Sign-in Sheet

**JUNE 15, 2005**

Name	Voting	Organization	Address	Electronic Communication
Edward A Kucewicz <i>ESAK</i>	Non-Voting	The Lubrizol Corp.	29400 Lakeland Blvd. Wickliffe OH 44092-2298	Tele: (440) 347-2415 Email: esak@lubrizol.com Fax: (440) 347-2878
Michael Anderson		Falex Corporation	2055 Comprehensive Drive Aurora IL 60505-	Tele: (708) 851-7660 Email: m.anderson@falex.com Fax: (708) 898-7851
Don Bartlett <i>DTB</i>		The Lubrizol Corporation	29400 Lakeland Blvd. Wickliffe OH 44095-	Tele: <i>440-347-2388</i> Email: dtb@lubrizol.com Fax: <i>440-347-2878</i>
Don Bell <i>DRB</i>	Non-Voting	Afton Chemical Corporation	500 Spring Street Richmond VA 23218-	Tele: (804) 788-6332 Email: don.bell@aftonchemical.com Fax: (804) 788-6243
Peter Bielik		D.A. Stuart	9100 Freeland Ave. Detroit MI 48228-	Tele: (313) 273-7374 Email: pbielik@dastuart.net Fax: (313) 838-1930
Breanna Bomback		The Lubrizol Corp.	29400 Lakeland Blvd. Wickliffe OH 44092-2298	Tele: (440) 347-5097 Email: bmbc@lubrizol.com Fax:
Frank Bondarowicz		International Truck and Engine	10400 W. North Avenue Melrose Park IL 60160-	Tele: (708) 865-4030 Email: frank.bondarowicz@nav-internati Fax: (708) 865-4229

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Name	Voting	Organization	Address	Electronic Communication
Tom Bryson	Voting	Mack Trucks, Inc.	13302 Pennsylvania Avenue Hagerstown MD 21742-2693	Tele: (301) 790-6744 Email: thomas.bryson@volvo.com Fax: (301) 790-5605
R Buck		Test Engineering Incorporated	Test Engineering, Inc. San Antonio TX	Tele: (210) 690-1958 Email: r.buck@tei-net.com Fax:
Juan Buitrago		Oronite	Chevron Oronite Company 100 Chevron Way, Richmond, CA 94802- 71-7418	Tele: (510) 242-1161 Email: jabu@chevrontexaco.com Fax: (510) 242-3392
Harold Chambers	Non-Voting	Visteon Automotive Systems	6100 Mercury Drive Dearborn MI 48126-	Tele: (313) 755-0124 Email: hchamber@visteon.com Fax: (313) 755-0124
R Cleveland		Dana Corporation	Spicer Axle Division Ft. Wayne IN 46801-	Tele: (804) 788-5255 Email: Fax:
Allen Comfort	Non-Voting	US Army TACOM	AMSTA-TR-D/210 Warren MI 48397-5000	Tele: (810) 574-4225 Email: comforta@tacom.army.mil Fax: (810) 574-4224
W Crouse		Sun Refining & Marketing	PO Box 1135 Marcus Hook PA 19061-	Tele: (713) 544-7499 Email: Fax:
Hector De La Fuente		Southwest Research Institute	6220 Culebra Road San Antonio TX 78238-	Tele: (210) 522-5996 Email: hdelafuente@swri.edu Fax: (210) 680-1777

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Name	Voting	Organization	Address	Electronic Communication
S Devon		Shell International Petro. Co.	Shell Centre London SE1 7NA	Tele: Email: Fax:
Chris Engel	Voting	Daimler Chrysler Corporation	CIMS 482-00-13 Auburn Hills MI 48326-2757	Tele: (248) 576-7487 Email:cae8@daimlerchrysler.com Fax: (248) 576-7490
John Fantin		Timken	Corporate Offices Canton OH 44706-0930	Tele: (713) 363-8190 Email:fantinj@timken.com Fax:
Frank Farber	Voting	ASTM TMC	6555 Penn Avenue Pittsburgh PA 15206-	Tele: (412) 365-1030 Email:fmf@astmtmc.cmu.edu Fax: (412) 365-1047
Greg Fett	Non-Voting	Dana Corporation	Spicer Axle Division Ft. Wayne IN 46801-	Tele: Email:gregfett@@dana.com Fax:
Roy Fewkes		GM Research, Fuels & Lubes	30500 Mound Road Warren MI 48090-	Tele: Email: Fax:
Dennis Florkowski		Daimler-Chrysler Corporation	800 Chrysler Drive Auburn Hills MI 48326-2757	Tele: (248) 576-7487 Email:cae8@daimlerchrysler.com Fax: (248) 576-7490
Miguel Garcia		Repsol YPF	2609 Native Oak Drive Flower Mound TX 75022-	Tele: Email:mgarcia@repsol-ypf.com Fax:

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Name	Voting	Organization	Address	Electronic Communication
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J Gottlieb

		Komatsu Dresser Company	East Sunnyvale Avenue Libertyville IL 60048-	Tele: (440) 347-1223 Email: Fax:
--	--	-------------------------	--	--

Jerry Gropp Voting



		The Lubrizol Corp.	29400 Lakeland Blvd. Wickliffe OH 44092-2298	Tele: (440) 347-1223 Email: jlg@lubrizol.com Fax: (440) 347-1555
--	--	--------------------	--	--

Tom Hansel

		Chevron Products	100 Chevron Way Richmond CA 94802-	Tele: Email: thansel@chevrontexaco.com Fax: (510) 242-3362
--	--	------------------	--	--

Scott Harold Voting

		Infineum USA L.P.	1900 E. Linden Ave. Linden NJ 07036-	Tele: (474) 231-2318 Email: Scott.Harold@Infineum.com Fax:
--	--	-------------------	--	--

Raymond Harris

		Petroleum Products Corp.	P.O. Box 2621 Harrisburg PA 2621 -	Tele: Email: Fax:
--	--	--------------------------	--	-------------------------

Marv Hart

		Century Lubricating Oils	Division of Fuchs Kansas City KS 66111-	Tele: (913) 441-7160 Email: mhart@fuchs.com Fax:
--	--	--------------------------	---	--

A Hebert

		State of California	Div. Meas. Stds. Sacramento CA 95826-	Tele: Email: Fax:
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Steven Herzog

		Rohmax	723 Electronic Drive Horsham PA 19044-	Tele: (215) 706-5817 Email: steven.herzog@degussa.com Fax:
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Name	Voting	Organization	Address	Electronic Communication
Didier Humbert		Total Raffinage Distribution Inter.	84, Rue de Villiers 92538 Levallois-Perret Cedex	Tele: Email: Fax:
M Hurcombe		British Petroleum Co., Ltd.	Research Centre Middlesex TW16 7LN	Tele: (908) 474-3031 Email: Fax:
N Kelly		Yellow Freight System Inc.	10990 Roe Avenue Overland Park KS 66207-	Tele: Email: Fax:
Tracey King		Chrysler Corporation	Chrysler Technology Center Auburn Hills MI 48326-2757	Tele: (248) 576-7500 Email: tek1@Chrysler.com Fax: (248) 576-7490
John Knight		Test Engineering, Inc.	12758 Cimarron Path San Antonio TX 78249-3417	Tele: (616) 567-1140 Email: jknight@tei-net.com Fax:
Brian Koehler	Non- Voting	Southwest Research Institute	P.O. Drawer 28510 San Antonio TX 78228-0510	Tele: (210) 522-3588 Email: bkoehler@swri.org Fax: (210) 684-7523
Cory Koglin	Voting	Afton Chemical	500 Spring Street Richmond VA 23218-2158	Tele: Email: cory.koglin@aftonchemical.com Fax:
Don Kreinbring		Dana Corporation	Spicer Hvy Axle and Brake Div Kalamazoo MI 49003-4097	Tele: (248) 350-0647 Email: don.kreinbring@dana.com Fax:




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Name	Voting	Organization	Address	Electronic Communication
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Richard Kuhlman

Afton Chemical Corporation	2000 Town Center, Suite 1750 Southfield MI 48075-1150	Tele: (804) 788-5303 Email:dick.kuhlman@aftonchemical.co Fax:
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Steve Lakes

Emery Chemicals	4900 Este Avenue Cincinnati OH 45232-	Tele: (216) 749-2610 Email: Fax:
-----------------	---	--

Kevin Layton Voting

Ethyl Corporation	500 Spring Street Richmond VA 23218-	Tele: (804) 788-5363 Email:kevin_layton@ethyl.com Fax: (804) 788-6358
-------------------	--	---

Donald Lee

Elco Corporation	1000 Belt Line Street Cleveland OH 44109-2800	Tele: (810) 986-1888 Email:dlee@elcocorp.com Fax:
------------------	---	---

Don Lind



Test Monitoring Center	6555 Penn Avenue Pittsburgh PA 15206-	Tele: (412) 365-1034 Email:dml@astmtmc.cmu.edu Fax: (412) 365-1047
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James Linden

GM Research, Chemical & Evironmental	Mail Code 480-106-160 Warren MI 48090-	Tele: (586) 986-1888 Email:james.l.linden@gm.com Fax: (586) 986-2094
--------------------------------------	--	--

Lawrence Ludwig

Schaeffer Mfg.	102 Barton Street St. Louis MO 63104-	Tele: (704) 878-5795 Email:lludwig@schaeffer.com Fax:
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Joseph Manning

Dana Corp.	Spicer Clark-Hurth Statesville NC 28677-	Tele: (248) 354-6985 Email:joe.manning@clarck-hurth.com Fax:
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Name	Voting	Organization	Address	Electronic Communication
Thelma Marougy		Eaton Corporation	Corporate R&D Southfield MI 48037-	Tele: (248) 354-6985 Email: thelmaemarougy@eaton.com Fax:
Steve Marty		Southwest Research Institute	P.O. Drawer 28510 San Antonio TX 78228-0510	Tele: (210) 522-5929 Email: smarty@swri.org Fax: (210) 684-7523
Christopher May		Imperial Oil Ltd.	Sarnia Research Center Sarnia, Ontario	Tele: Email: chris.may@esso.ca Fax:
Bruce McGlone	Voting	Arvin-Meritor	2135 West Maple Road Troy MI 48084-7186	Tele: (248) 435-9929 Email: bruce.mcglone@arvinmeritor.co Fax: (248) 435-1411
Ken McLeod		Chevron Oronite Co.	4502 Centerview Drive San Antonio TX 78228-	Tele: Email: kmcleod@chevrontexaco.com Fax:
Chris Morgan		General Motors Powertrain	Pontiac MI OH	Tele: (586) 986-1897 Email: christopher.morgan@gm.com Fax: (586) 986-2094
Mark Mulvihill		Gulf Oil International	Harmerville Research Center Pittsburgh PA 15238-	Tele: Email: Fax:
Nobukazu Okamoto		Toa Nenryo Kogyo Co. Ltd.	175 Tsurugaoko, Oi-machi	Tele: (810) 947-0069 Email: Fax:

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Name	Voting	Organization	Address	Electronic Communication
Subardjo Pangarso		Lemigas R&D Ctr. for Oil & Gas	JL. Ciledug Raya-Cipulir Jakarta Selatan 12230	Tele: (281) 986-5745 Email: Fax:
Kim Peyton		Nalco Chemical Co.	PO Box 87 Sugarland TX 77847-	Tele: (703) 759-0460 Email: Fax:
Chris Schenkenberger	Non- Voting	The Lubrizol Corporation	Drop #121C Wickliffe OH 44092-	Tele: (440) 347-2927 Email:csc@lubrizol.com Fax:
Alex Schuettenburg		Phillips Petroleum Co.	148AL Phillips Research Bartlesville OH 74004-	Tele: Email: Fax:
John Skiba		Citgo Petroleum	PO Box 3758 Tulsa OK 74102-	Tele: (281) 544-9226 Email: Fax:
Anthony Skrobul		Equilon Enterprises LLC	Westhollow Technology Center Houston TX 77082-3101	Tele: (412) 826-5051 Email:apskrobul@equilon.com Fax:
Dale Smith	Voting	Pittsburgh Applied Research Corp.	100 William Pitt Way Pittsburgh PA 15238-	Tele: (412) 826-5051 Email:dsmith@parctech.com Fax: (412) 826-5443
William Sullivan		ExxonMobil Chemical Co.	Synthetics Division Edison NJ 08818-	Tele: (732) 321-3354 Email:william.t.sullivan@exxonmobil.c Fax: (732) 321-6064

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Name	Voting	Organization	Address	Electronic Communication
Ian Taylor		Esso Research Centre	F7 Bld15 Research Centre	Tele: Email: Fax:
Paula Vettel		D.A.Stuart Company	4580 Weaver Pkwy Warrenville IL 60555-	Tele: (630) 393-8854 Email:pvettel@dastuart.net Fax: (630) 393-8577
Luis Villahermosa		US Army TACOM	6501 E. Eleven Mile Road Warren MI 48036-	Tele: (810) 574-4207 Email:villahel@tacom.army.mil Fax:
Claire Whitton	Non-Voting	Afton Chemical Corporation	500 Spring Street Richmond VA 23218-2158	Tele: (804) 788-5052 Email:claire.whitton@aftonchemical.co Fax: (804) 788-6243
Leslie Wolf	Non-Voting	Amoco Petroleum Products	Products Research Naperville IL 60563-8460	Tele: Email: Fax:

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# ASTM SECTION B0.03 GEAR LUBRICANTS AND FLUIDS

## SCOPE

This section is responsible for the promotion of knowledge of, and specifications, test methods and terminology for automotive gear lubricants and fluids. This includes gear lubricants used in rear drive axles, power dividers, and fluids used in manual and automatic transmissions of wheeled or track laying vehicles such as passenger cars, recreation vehicles, taxicabs, trailers, trucks, buses, tractors, construction and farm vehicles.

## FUNCTIONS:

- Keep existing performance tests operational, at historic severity and precision levels.
- Ensure that performance test parts and reference oils are available in adequate supply and of a consistent quality.
- Develop and maintain performance tests for gear lubricant and transmission fluid categories.
- Maintain surveillance of test procedures under Section jurisdiction
- Work to improve test precision and correlation with field service.
- Maintain active liaison with related organizations, CEC, SAE.

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## **L-37 Report to D02.B0.03**

**PRI/ Headquarters, Apollo Room - Warrendale, PA**

**June 15, 2005**

### **Panel Meetings**

- Since the November B0.03 meeting:
  - Three Surveillance Panel meetings.
  - Four Teleconference Panel meetings.
  - A total of 7 Panel meetings.

**Attachment**  
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## Information Letters Issued

### IL 05-1, effective February 18, 2005

- Use cleaning Solvent meeting ASTM D235 Type II, Class C requirements for:
  - ✓ Aromatic Content (0-2% vol.),
  - ✓ Flash Point (142 °F/61°C, min)
  - ✓ Color (not darker than +25 on Saybolt Scale or 25 on Pt-Co Scale) may be used.
  - ✓ Obtain a Certificate of Analysis for each batch of solvent from the supplier.
- Donated Reference Oil Test Program, Calibration Period Length Adjustment.

## Information Letters Issued

### IL 05-2, effective May 4, 2005

- Updated Test Precision
- Rounding Test Results Using ASTM E 29

Attachment

4

Page

2/5

Reference

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## Hardware Batch Approvals

- **2004 V1L351/P4T771 Non-Lubrited Hardware:**
  - ✓ Approved initial Reference targets & bands.
  - ✓ Hardware approved for both Standard and Canadian testing with no Correction Factors.
  - ✓ Hardware approved for use with Reference & Candidate tests completing on or after February 2, 2005.

## Hardware Batch Approvals

- **2003 L247/T758A Lubrited Hardware:**
  - ✓ Approved initial Reference targets & bands.
  - ✓ Hardware currently approved for Standard testing ONLY with no Correction Factors.
  - ✓ Approved for use with Standard Reference & Candidate tests completing on or after April 21, 2005.

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## 2005 Non-Lubrited Hardware Order

- ✓ Binding PO's were issued May 5th, 2005.
- ✓ Will be made with 8620 primary steel. The panel will be advised if the primary steel cannot be obtained.
- ✓ Total Gears Ordered:            1370
- ✓ Laboratory Hardware TF visit to Lugoff, S.C. planed for fall 2005.

## 2005 Non-Lubrited Hardware Order (cont)

- 44-test Standard and Low Temperature hardware approval Matrix approved.
- Anticipate hardware receipt and Matrix testing around December/January, 2005.

Attachment      4  

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Reference

## TMC Memorandum Target/Band Updates

- V1L686/P4L626A Lubrited hardware updated at 20 tests for TMC 128-1 and 151-3 oils.
- V1L176/P4L741A Non-Lubrited hardware updated at 20 tests for TMC 128-1 and 151-3 oils.
- Both hardware target updates were effective with reference tests completing on or after May 19, 2005.

## Thank You

- Laboratory Task Force - for donated testing and extra work.
- TMC - statistical and technical support.
- Companies - for \$\$\$ commitment.
- Panel - for patience, direction, and support.

**Attachment** 4

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**Reference**

## L42 B03 meeting June 2005

- L42-1
  - Labs have made significant progress on the L42-1 specification.
  - Labs will perform visits in August to watch L42-1 run at each lab
    - 5 task force meetings/conf calls since Nov
    - Task force meeting planned for week of June 20<sup>th</sup>
  - Data Dictionary to be sent for Beta testing in June

## TMC 116 (115 replacement)

- TMC distributed TMC 116 in May
  - 2 of 3 labs have run matrix testing
  - Initial results look to provide similar results as TMC 115
- Lab will order new Hardware batch in July 2005 for a received date in Q2 or Q3 2006

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## Scoring/Bright Burnish rating issue

- Raters defined polishing as Bright Burnish
- 5 pinions&rings (w/various bright burnish) sent to high volume raters to be rated.
  - No clear solution presented itself
- Same 5 gearsets sent to Harold Chambers and John Dharte to get their opinions of how they would be viewed at the LRI panel.

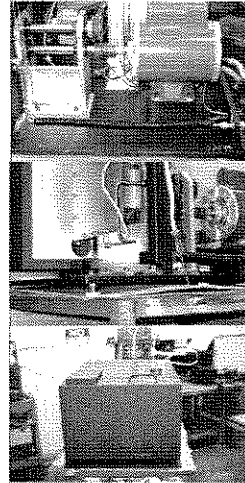
## Information Letters

- Cleaning solvent for the L42 should meet Type II, class C of the D235 spec for Aromatic, flash point and color
- Test precision was updated
- ASTM E29 is to be used for all test result rounding

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**ASTM L-60-1 S.P.  
Report to D02.B0.03**

6/15/05



**Surveillance Panel Activity**

2 Surveillance Panel Meetings

Information Letter 05-1

- Made changes to the carbon varnish rating method for improved reproducibility
- Defined the important requirements for cleaning solvent

Attachment 6

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Reference \_\_\_\_\_

## Surveillance Panel Activity

### Information Letter 05-2

- Reviewed precision of final reported values and compared to realistic measurement capabilities
- Changed resolution of final D5704 reported values to coincide with SAEJ2360
- Rounding results according to ASTM E29
- Aligned severity adjustment standard deviations between the Test Method and LTMS system by using TMC 151-2 only

## Surveillance Panel Activity

- Test Hardware
  - November 2000 hardware in supply
- Reference Fluids
  - TMC 148-1 and TMC 151-2 being assigned at 50/50 ratio

Attachment

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Reference

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## Mack HTCT S.P. Presentation to Section B0.03

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- By: Brian Koehler; S.P. Chairman
- June 15, 2005
- PRI, Warrendale, PA

## TEST STATUS

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- 2 labs with a total of 2 stands
- Two references were run this last period, both passed
- Three info letters issued, 4-1, 5-1, 5-2
- One S.P. meeting held
- New style hardware is available
- All stands on conf. 2 hardware

<b>Attachment</b>	<u>7</u>
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# ASTM Rating Task Force Report

## June 15, 2005

**By: Arthur Sanchez, ASTM RTF Leader**

The ASTM Calibration Workshop was held in Richmond, VA January 11, 12, & 13, 2005 hosted by Afton Chemical Company. The next Calibration Workshop is scheduled for July 12,13, &14 in San Antonio hosted by Southwest Research.

**Rater Calibration Alarms:** The issue of expanding the EWMA limits due to several raters concern that limits are too tight will be discussed at the next workshop. The SP consensus was that the RTMS system is apparently doing its job and there was no basis for this request because technical data wasn't presented to support the request. If raters still feel the need to expand EWMA limits after this discussion, RTF Chairman Art Sanchez will appoint an RTF representative to present/provide data and rational to the SP concerning this issue.

**L-42 Scoring/Bright burnish:** The L-42 round robin was conducted rating five pinions and five ring gear for scoring and bright burnish by the four labs. The rating data was analyzed by the SP and then it was decided to send the pinions to Harold Cambers and John Dharte to get their opinion.

**ASTM L-60-1 Rating Aid:** The carbon rating aid should be in use by all four labs as of March 1, 2005.

**L-60-1 Varnish Rating Procedure:** This rating procedure was accepted by the Surveillance Panel on February 2, 2005. The rating change was to be implemented with the next reference oil test in each laboratory.

L-60-1 Information letter 05-1, Sequence Number 29, February 25, 2005.

**L-60-1 Varnish Rating Procedure:** Item A10.1 in the rating procedure concerning the possible need for the use of skin tone colored gloves to hold the gears will also be discussed at the next workshop. The raters will try to find one glove part number and manufacturer for the skin tone colored glove that could be used by raters to minimize any variation in ratings.

Attachment	8
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Reference	_____

Pete Redonich of Lubrizol will bring one skin tone colored glove example for review by raters.

**CRC L-37 Photo Rating Aid:** A discussion regarding the possible need for replacement of several distress photos took place at the last workshop. The RTF group was not aware of the danger of changing established historic data of severity limits and bands. The RTF group will have to give this issue much thought. If the decision is to proceed with the replacement of several distress photos, an official request will be presented to the SP and an RTF representative will be appointed by Chairman Art Sanchez to appear before the SP for discussion with all panel members concerning this issue.

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# ASTM SECTION D02.B0.03

Report to Subcommittee D02.B

Summer 2005

## ASTM SECTION B0.03 GEAR LUBRICANTS AND FLUIDS

### SCOPE

This section is responsible for the promotion of knowledge of, and specifications, test methods and terminology for automotive gear lubricants and fluids. This includes gear lubricants used in rear drive axles, power dividers, and fluids used in manual and automatic transmissions of wheeled or track laying vehicles such as passenger cars, recreation vehicles, taxicabs, trailers, trucks, buses, tractors, construction and farm vehicles.

### FUNCTIONS

- Keep existing performance tests operational, at historic severity and precision levels.
- Ensure that performance test parts and reference oils are available in adequate supply and of a consistent quality.
- Develop and maintain performance tests for gear lubricant and transmission fluid categories.
- Maintain surveillance of test procedures under Section jurisdiction
- Work to improve test precision and correlation with field service.
- Maintain active liaison with related organizations, ie. SAE.

June 22, 2005

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# OVERVIEW

## Existing Procedures and Standards

- *All tests under Section B03 are available with good supply of hardware.*
- *All outstanding hardware are approved and where appropriate, relevant correction factors have been applied*

June 22, 2005

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# OVERVIEW

## New Category Development

*PM-2: Performance test table developed. Task Force now actively meeting. Task Force will address Pitting test issue with SAE*

June 22, 2005

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## SECTION TASK FORCES

- **Gear Oil Classification Panel**
  - *No new activity.*
- **Test Rating Task Force**
  - *Task Force actively working with with the L-42 SP and the LRI to handle burnishing issue*
- **GL-5 Task Force**
  - *Draft category standard now in draft #4. Will be ready by the end of summer*
  - *Will also look at a much more robust GL-5 type category*

June 22, 2005

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## CURRENT STANDARD MAINTENANCE

SAE J2360, API GL-5, D 5760

### Surveillance Panel Activity

- **L-33-1:** *All outstanding gear batches are available for use, with appropriate correction factors, where appropriate. Current supply of hardware is 2+ years. Panel will begin looking at alternate hardware options, focusing on the Dana Model 44 (L-42) in 2006.*
- **L-37:** *The SP is now developing matrix data to approve the most recent lubrified axle batch for the LT L-37 .*
  - *When the current activity is completed 1 plain and 2 lubrified batches will have been tested for LT L-37 approval. Previous batches were and will stay grandfathered*
  - *All future batches will be matrix tested in both Reg Temp and Low Temp conditions and correction factors defined where necessary.*

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# CURRENT STANDARD MAINTAINENCE

SAE J2360, API GL-5, D 5760

## Surveillance Panel Activity

- **L-42:** *The Panel is almost finished working on the hardware standardization process for the draft. All current labs will have the new stand configuration in August. Referencing expected to start after lab visits this summer. At this point, test will be named to L-42-1.*
- **L-60-1:** *Recent updates to C/V rating procedure have improved precision.*

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# CURRENT STANDARD MAINTAINENCE

SAE J2360, API GL-5, D5760

## Surveillance Panel Activity

- **Cyclic Durability:** *All industry stands are now calibrated using Configuration # 2 hardware.*
- **Seal Immersion:** *Panel looking for a new reference oil (aggressive) for Nitrile seals.*

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Reference

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## NEW STANDARD DEVELOPMENT

- **PM-2** (Commercial Synchronized Manual Transmission Oil Applications)

### **Task Force Activity**

- *Defined test list with partial list of limits, Task Force now active.*
- *Task Force will be communicating to SAE that there is no available pitting test in the industry.*

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## Activities Directed at Ballots

- L-42 Stands are upgrading to the new configuration. Draft Standard ready by late 2005.
- PM-2 TF will survey European OEM's for proposed limits on CEC methods.
- GL-5 TF has written and reviewed a draft category Standard rather than rewrite STP 512A. Ready by end of summer 2005
- D-5662 SP work slowed on revisions prior to ballot.

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## General Information

- SAE TC-3 will probably hold an initial session to begin an update of SAE 2360 at the next LRI in August, in conjunction with ASTM B03 meetings.

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## Next Section Meeting

Nov, 2005 in Pittsburgh.

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