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ASTM Gear Rating Task Force Meeting & Gear Rating Workshop January 18-20, 2011

January 18, 2011

The ASTM Gear Rating Task Force Meeting was attended by: Art Sanchez, Tony Barrera, Brian Foecking, Jesse Rodriguez, Frank Lopez, Marty Rose, Pat Adams, Will Sanchez, Scott Parke and Don Lind.

Review Task Force Meeting Minutes and New Action Items

L-42 Rating templates

Status: On Hold. No new progress. Dana moving on providing tooth profile measurements.

Action item: Marty Rose to follow up with Cory Koglin and report back to raters at July gear workshop.

L-33-1 Templates

Status: Active. A correction to the 20 mm line across each template was made.

Action item: Scott Parke will send out information letter for L-33-1 templates.

L-60-1 Rating fixture

Status: Active. Surveillance Panel suggested having another rating exercise using the L-60-1 Fixture at this workshop for further analysis of the possibility of rating improvement.

Action item: Another rating exercise will take place at this workshop after initial ratings are completed. Further discussion and evaluation of the L-60-1 rating fixture will continue at the July workshop.

L-37 Tooth Breakage Definition

Status: Active. Several L-37 photos of tooth breakage collected by Lubrizol were presented to the raters for discussion. The discussion centered on the need for a definition of tooth breakage and broken tooth for the L-37 procedure.

All photos were reviewed by raters. After much discussion, Scott Parke presented a rating exercise that consisted of each rater giving their opinion of each L-37 photo examples of broken pinion teeth. A rating sheet with a **Broken, Not Broken, and Not Sure** choice was provided. The rating exercise concluded with a mixed review of rating opinions, thus proving the need for a clear definition.

Discussion to continue at the closing meeting.

New L-37 Distress Photos

Status: Active. New L-37 Distress photos have been approved.

Action item: Scott Parke will send out an information letter along with the purchase price of photos and expiration date of current photos now in use.

One Gear Rating Workshop per Year

Status: Active. The issue of having one workshop per year instead of two per year was discussed.

Action item: A vote was taken. Of the five votes taken regarding the one workshop per year, the vote was 1 vote in favor, 2 against, and 2 abstained. The one workshop per year issue was voted down. There will continue to be two gear rating workshops per year.

Shipping of ASTM Lights to Workshops

Status: Active. The necessity of shipping the ASTM lights around to the workshop locations was discussed. It has been proposed that it is no longer necessary to ship the lights because the hosting labs now have enough lights to supply the workshops needs. Furthermore, SwRI has a supply of lights in San Antonio that can be used, if needed.

Action item: All lights are required to have the same bulb, a 15watt cool white with a minimum of 200 foot candle illumination,

Email L-37& L-42 RCMS Rating Results

Raters requested sending RCMS results by email instead of fax.

Don Lind and Scott Parke agreed to give raters the option of sending ratings results by email and also suggested notifying Scott of the email by phone as well.

L-33 Area 4 Recommendation, Housing Cover

A discussion of a problem being encountered with area 4 and the Lab To Lab inconsistency of rating this area. This problem was also discussed at the July workshop. Raters discussed the following recommendation.

To help improve the ratings of area 4 the raters are making a recommendation that: All areas within one millimeter of the rating template edge on the cover should be excluded from the rating. The large pit pin gauge used for pitting on the L-37 test can be used to measure the exclusion area. This pin gauge measures 0.98mm diameter.

Sometimes small spots of rust tend to appear on the cover at the rating template edge partially under the template with partial exposure into the rated area of the cover. These very small spots of rust can be overlooked causing the rating difference from 10 to a 9 or an 8, a pass or a fail. This issue will be discussed at the July rating workshop.

Adding Intertek to host Gear Workshops

Tony Barrera was asked of the possibility for Intertek to host a gear workshop in the future. This will take some of the load away from Lubrizol having to host the July workshop every year. The winter January workshop could be held in San Antonio hosted by SwRI one year and Intertek the next year, and the July workshop can be held in Richmond one year and Cleveland the next year.

Tony will consult with his management regarding this issue and reply at the next Gear Rating Workshop in July.

Next Workshop Date

July 19-21, 2011 hosted by Lubrizol.

Close of meeting

Calibration ratings were conducted, reviewed and discussed and found acceptable by all raters.

Light meter reading for each day.

January 18, 2011

Table 1. 403
Table 2. 439
Table 3. 334
Table 4. 357
Table 5. 413
Table 6. 432
Table 7. 429
Table 8. 430
Table 9. 356

January 19, 2011

Table 1. 360
Table 2. 430
Table 3. 280
Table 4. 300
Table 5. 368
Table 6. 385
Table 7. 370
Table 8. 371
Table 9. 402

January 20, 2011

Table 1. 414
Table 2. 420
Table 3. 311
Table 4. 349
Table 5. 426
Table 6. 440
Table 7. 442
Table 8. 442

January 19, 2011

Don Lind and Scott Parke replaced calibration rating parts with parts for initial ratings. Initial ratings continued to the end of the day.

January 20, 2011

Initial ratings were reviewed and discussed in great detail. Completion of workshop ratings.

L-60-1 Rating Fixture exercise

The rating exercise consisted of rating 10 gears with the fixture. Four of the gears used were rated during the calibration phase of the workshop and the other six gears were rated during the initial phase of the workshop. Once data was produced using the fixture and compared to data using the conventional rating method, ratings showed improvement. L-60-1 rating fixture discussion will continue at the July Workshop.

Raters continued discussion of the L-37 tooth breakage definition.

Tooth breakage definitions were reviewed and discussed. After much discussion, raters present agreed on a definition. This definition will be presented to the Surveillance Panel.

Proposed L-37 Tooth Breakage and Broken tooth Definition

Distinct from chipping (defined elsewhere), tooth breakage is characterized by distinct sharp edges or pieces broken from or displaced from any single gear tooth in any one location larger than 1 mm on the drive side, coast side, or top land.

A broken tooth is characterized by removal of or displacement of the gear tooth due to stress sufficient to push the gear beyond its yield point, causing failure of material in excess of one third of the rated contact area.

Breakage: > 1mm² and < 1/3 of the entire tooth

Broken tooth: > 1/3 of the rated contact area.

Close of workshop

Chairmen thanked all in attendance for their help and participation towards a successful Gear Rating Workshop.

Respectfully submitted,

A handwritten signature in cursive script, reading "Arthur Sanchez", is written over a horizontal line.

Arthur Sanchez, Chairman
ASTM Gear Rating Task Force

ASTM GEAR RATING TASKFORCE PANEL MEMBERSHIP

<u>MEMBERS</u>	<u>COMPANY</u>
Adams, Pat	Afton
Foecking, Brian.....	Lubrizol
Kozlowski, Ralph.....	Intertek PARC
Lopez, Frank.....	SwRI
Shoda, Ron.....	Lubrizol
Radonich, Pete	Lubrizol
Rodriguez, Jesse.....	SwRI
Rose, Marty.....	Afton
Sanchez, Art, Ldr.	SwRI
Stocks, Wes.....	Afton
Sweeny, Mark.....	Intertek PARC

<u>MAILING DISTRIBUTION</u>	<u>COMPANY</u>
Akucewich, Ed.....	Lubrizol
Tony Barrera.....	Intertek
Bonewald, John.....	SwRI
Gropp, Jerry	Lubrizol
Huron, John.....	Oronite
Johnson, Ron.....	Chevron
Koehler, Brian.....	SwRI
Koglin, Cory.....	Afton
Lind, Don	TMC
McGlone, Bruce.....	Meritor
Schenkenberger, Chris.....	Lubrizol
Smith, Dale.....	Intertek PARC
Zakarian, Jack	Chevron

Attendance Roster

San Antonio, TX, January 18, 2011

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Attendance Roster

San Antonio, TX, January 19, 2011

[illegible]

Attendance Roster

San Antonio, TX, January 20, 2011

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