

ASTM D-7038 (L-33-1) MOISTURE CORROSION TEST
SURVEILANCE PANEL MEETING

For LRI #145
April 11, 2007
PRI Headquarters
Warrendale , PA

Minutes

I. Call to Order

II. Approval of Minutes

02/13/07 Last Meeting

Approved

Motion: Chris Schenkenberger

Second: Salvatore Rea

Motion: Unanimous

III. Business

- a. Rater recommendations for the use of the Area 2 Rating Template.

A4.12 Rate the differential case side thrust gear and Hub I.D (Area 2) with the rating template shown in Fig. A1.15

- a. Insert rating template into area 2, bore area.
b. Push down on template stem and make sure template is seated and level.
c. Rate all bore area above flat surface of template to the end of the bore area at bevel edge non-contact surface.

Verbiage approved with Don Lind to provide the correct location and numbering for information.

Motion: Chris Schenkenberger

Second: Cory Koglin

Motion: Unanimous 6, 0, 0

- b. Conference call notes with labs and raters **Attachment A**
This document was reviewed with the committee with little discussion.

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c. Chairs email and requests of raters Attachment B

This document was summarized by the chair and responds to the rate notes.

d. Raters response to chairs request for direction Attachment C

The rater recommendations documentation drew a great deal of debate. The comments are relevant to the response and listed in a series of comments then the motion.

- The operation is becoming too complicated based on where and how the use magnification.
- Can a digital optical comparator be used to find and provide consistency in the operation?
- Is the optical comparator too sophisticated and time consuming for our purpose.
- The raters can agree that they can see color on all the very small spots of rust but magnification is needed to determine depth and texture.
- If magnification is used can this be used to search all the parts for rust
- The magnification is a very small almost eye piece that only shows a small portion of the parts.
- Can we rate the area of the axle where the spots of color are seen but only call the rust that is in the area of magnification without searching?
- Will rating all rust encountered change the severity of the test?
- Should we have one rater provide an example as to how much the severity could change?
- Should the raters review the possibilities during the rater workshop?
- If the raters use the workshop we need to have the exercise done in both the summer and winter to assure we have input from all the qualified personnel.
- We need to have a clearly defined repeatable exercise that can be performed at both.
- We need to have a list of rules and expectations to perform the exercise.

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Motion: Don Lind (volunteered) to create a list of rating rules and definitions that define the exercise. The idea is raters will rate first the parts as they normally do and document the results using additional samples and allowing an additional 1/2 day in the calibration. The raters will then use the method of rating that includes the use of magnification to determine all spots of color in question and count any spots with depth or texture found within the range of the magnification. The exercise will be defined and outlined quickly and sent to the committee for review and a conference call including only voting members to review the process so the results of the first group can be obtained at the July workshop.

Motion: Don Lind
Second: Dale Smith
Vote: Unanimous 6, 0, 0

e. Downtime verbiage definition.

The committee discussed the meaning of downtime and considered the use of deviation during down time. The overall response is that there is nothing in common between downtime and deviation. For this reason the two cannot be used together.

Resulting Motion: **In A2.2.4 A downtime occurrence is defined as a time at which the test is shut down until the time the test returns to test operating conditions. The word conditions will be replaced with the word specifications. In A2.1 and additional sentence stating: Operational validity is not calculated during down time.**

Motion: Dale Smith
Second: Don Lind
Vote: Unanimous 6, 0, 0.

A2.1 For a test to be operationally valid it shall not exceed the limits on unscheduled down-time and deviation from critical operating parameters.

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A 2.2.4 A downtime occurrence is defined as a time at which the test is shut down until the time the test returns to test operating specification. conditions.

f. Stopping warm-up phase for oil return when foaming.

The committee discussed this question and agreed that this is applicable and needs not be addressed based on the procedures statements. The stopping is allowed during the warm-up and this is applicable for the foaming issues.

A 2.2.1 Motor Phase: Warm-up-No limit on number of occurrences.

IV. New Business? **None**

V. Adjourn Motion:

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Attachment A

Summary of Actions

Attendance:

Bryan Foecking LZ, Pete Radenich LZ, Don Bartlet LZ,
Jessie Rodriguez SWRI, Brian Koehler SWRI, Hector DeLaFuente SWRI,
Marty Rose Afton, Cory Koglin Afton,
Ralph Kozlowski Intertek, Dale Smith Intertek,
Don Lind TMC.

The ASTM L-33-1 Committee asked the chairman to convene a conference call with the raters to review ways to better the rating process in the L-33-1 test with focus on areas 2, 3, and 4. The issues are the 8 and 9 ratings where rust spots are small and difficult to see. The chairman requested the call based on these three criteria.

1. Provide the L-33-1 committee with direction as to what may be done to improve the 8 and 9 ratings. Primarily the very small spots of rust that are difficult to determine if they meet the rust criteria.
2. Discuss a method of rating to allow all raters to see the very small rust spots the same and provide direction to the committee about changes that could be made.
3. Discuss verbiage for the use of the Area #2 aluminum rating template for the procedure.

The discussions we random about the rating severity the highlights are as follows:

The test ratings tend to be severe based on the comment that at LRI the most common re-rate is not finding the spots of rust not too many spots.

A suggestion to modify the template as the edge of the template tends to be hard to see and a beveled edge could provide better vision? Second comment is the problem the template or the definitions the cause for the problem. The third calibration data indicates that there is no fault of template or definition as the common factor is the size of the spots and how they are being found and viewed.

The TMC reminded that test can be shutdown based on precision and the rating issues are a part of the cause. If precision cannot be improved the test is in jeopardy to be shutdown for Precision.

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A statement about the possibility of minimum size of rust using the L-37 pin gauges. This was unacceptable based on "rust is rust and a rater cannot distinguish a minimum size based on their present system.

Magnification is the most likely cause of the severity problem as how and when it is used. Magnification's use differs between raters.

The question of how the raters see rust in order of rust definition is usually first color, second texture, and third depth.

The final summary of the call is the primary cause of the variability between raters is Magnification.

1. The raters are asked to convene a conference call before April 4th for the raters to review the rust definitions and procedure to determine what will help the severity problem. Possible clarifications:

- **Better define the use of Magnification.**
- **Better define the definitions.**
- **Review the possibility of minimum rust dimension.**

2. Ask the raters to provide a description of the aluminum template usage for the test procedure.

Thank You,
Dale B. Smith
Chairman, ASTM D 7038 L-33-1 Committee

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Attachment B

Greetings All,

I am sure that I did not get all of the raters email addresses as this is the first time I am making such a request. Please forward this request to any L-33-1 rater in the system so we may have as much input from the raters as possible. The L-33-1 committee has an urgent need to convene a conference call for the L-33-1 raters and labs. We are requested to provide direction to the L-33-1 committee about the variability of the L-33-1 test ratings in areas 2, 3, and 4. I have asked the Don Lind to provide the dial in combination with the L-42 RCMS conference call the time will be 2:30 PM EST on Tuesday February 28, 2007. Please respond to this email so I may know we have enough raters for a good discussion. The agenda is as follows:

1. Provide the L-33-1 committee with direction as to what may be done to improve the 8 and 9 ratings. Primarily the very small spots of rust that are difficult to determine if they meet the rust criteria.
2. Discuss a method of rating to allow all raters to see the very small rust spots the same and provide direction to the committee about changes that could be made.
3. Discuss verbiage for the use of the Area #2 aluminum rating template for the procedure.

Thank You,
Dale B. Smith
Chairman, ASTM D 7038 L-33-1 Committee

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Attachment C

Rater L-33 Conference Call
March 29,2007 1:00 PM C T.

Better Define the use of Magnification:

After reviewing sections A4.5 and A4.6, the Rating Task Force feels the current rating procedure for use of magnification is correct.

L-33-1 Rating Procedure Section A4.5 and A4.6

A4.5. Rate each area without magnification. Do not use magnification for determining additional rust or subdivision of a predetermined spot of rust.

A4.6 If a spot of rust is encountered that is beyond reasonable confirmation without magnification, use 10X magnification only on that spot to determine if it is rust. If after using 10X magnification on the suspicious spot and it is still inconclusive, the evaluation should be that the condition is not rust.

I. Better define the definitions of Depth and Texture:

Rating Task Force feels the current definitions for Depth and Texture are correct.

Most raters are comfortable with the current definitions and feel that change would not help ratings.

Current Descriptive Characteristics of Rust

Rust will always have two or more of the following descriptive characteristics.

- 1.Color - (Red, yellow, brown or etc.)
- 2.Depth - (Build-up such that it is different than adjacent areas)
- 3.Texture - (Etching, scaly or other obvious forms of surface deterioration).

Suggestions discussed during conference call that were not accepted.

- 1.Color – (Dark brown with red tint, Light brown, Black, Red).
2. Depth – (Surface build-up or formation of deposit).
3. Texture – (Etching, Deterioration of original surface).

II. Review the Possibility of Minimum Rust Dimensions Rated:

The use of pin gauge guides, were suggested to determine the size of the rust spot of minimum dimension.

For example:

For rust spots, size 0.24 mm in diameter or smaller use the trace pin gauge used for spitting.

For rust spots, size 0.49 mm in diameter or smaller use the light pin gauge used for spitting.

It was noted that the Surveillance panel would not allow disqualifying rust of any size.

Possibly disqualifying rust less than 0.24 mm in diameter could be evaluated at the next Gear workshop.

III. Improving Ratings from 8 to 10 in Areas 2, 3, & 4:

Rating Task force would like to propose a rating exercise allowing the use of magnification for areas 4, at cover template edge within 1/8" away from template edge, and areas 7, 8, 9, & 10. No magnification will be used for areas 1, 2, 3, 5 and 6.

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If the concern is precision or and when to use and when not to use magnification is the issue the RTF group would like to try the method mentioned above at the next work shop in July.

This rating exercise would take place on the first day after the RTF meeting. Raters will need to review and discuss any difference in ratings in great detail. After the ratings are completed raters will need to share their method and reason for determination or discounting a spot of rust. This will help raters better understand their differences and make adjustments accordingly.

This exercise took place at the last Gear Rating Workshop in San Antonio, to no avail. This was done without detailed discussion and review of the difference in ratings due to time and schedule.

The true test of this proposed rating method would be how LRI interprets the ratings. If this rating exercise is successful and is approved by the Surveillance Panel the L-33 LRI Board member and the LRI Referee rater would have to use the same procedure.

The Rating Task Force would like more time set aside for the L-33 ratings. The L-33 ratings could start the first day of the workshop after the RTF meeting. The Rating Task Force feels that the Gear Rating Workshops are the best place to improve the current L-33 rating issues discussed.

**Comments from Surveillance Panel Conference Call February 28,
2007:**

The test ratings tend to be severe based on the comment at LRI. The most common re-rate is not finding the spots of rust.

Magnification is most likely the cause of the severity problem as how and when it is used. Magnification use differs between raters.

Small spots of rust are difficult to determine if they meet the rust criteria if magnification is not used to confirm.

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