Attendees:

SwRI -	**Mueller, Thomas**
Lubrizol -	**Schaup**, Ariemma, Gingerich
Afton -	**Sangpeal,** Bell, Campbell, Horvath
Intertek -	**Lange,**
TMC -	**Beck,** Venhoff
BASF -	**Goyal,** Margret, Mosher
Dana -	**Zyski**
Cummins-Meritor -	**Carowick,** Catania
Army -	Sattler, **Comfort**
AAM -	**Muransky**
International Motors -	Morris
Fuchs -	Bender
Oronite-	**Warden**, Jackson
Shell-	Jordan, Schweitzer, Uy
Exxon-	**Banas**
Daimler Truck NA-	Fry, Vanderwal

Voting Members in **BOLD**

1.0 Membership Review

- No change
- Dylan Beck from the TMC volunteered to serve as the L-37-1 secretary.

2.0 Meeting minutes Approval

– August 7th, 2024, ASTM Meeting #214

Motion #1 ➔ **Zyski 1st /2nd Carowick approve the meeting minutes from the August 7th, 2024, ASTM Meeting. Motion passed unanimously, 11-0-0 (Yes-No-Abstain).**

3.0 Action Item Review

- Nick Shaup to follow-up on stats group requests for the L-37-1 tests
    - MnP Coated hardware target update
    - 155-2 approval matrix?

4.0 Hardware Order Update

- New hardware to be delivered late Q1

5.0 155-2 Oil Targets

- Stats group requested to review data on 155-2
- Stats group requested to review data on 2023 coated hardware

6.0 Rating Task Force Recommendation

- Panel requested recommendations for:

    - Improved rating consistency

    - Gear reference rating aid for the new Gleason hardware

    - Rating scale for L-37-1

- Explore Rating to 0.5 merits
- Additional rating discussions at the July 2024 workshop:
  - o Interest in a calibration based workshop. Similar to the Deposit rating workshop
  - o Agreement that it is possible to move towards 0.5 merits
  - o Supplemental rating aids is desired by the rating group
    - Gleason specific
    - Coated and uncoated
- Afton has started the process of putting together a supplemental rating aid:
- This rating aid can live outside of Manual 21 so it can be updated and added to easily (Live on the TMC website).
  - o 51 pinion sets have been rated by Afton and have been set to LZ
  - o Parts will be rated at all four labs
    - Parts are then selected for photo candidates
    - Goal is to have photos available for a rating exercise at the January 2025 gear rating workshop
- TMC Presented on the structure of the deposit rating workshop and how this could be applied to the gear rating workshop.
  - o There was interest from the panel on using this method over the RCMS system
    - The TMC will take an action item to put together an implementation plan for this workshop structure to present at the February LRI meeting
  - o The focus of the January workshop will be on supplemental rating aid development.
- See appendix for presentation

7.0 Adjourn

Motion #2 → Mueller 1st /2nd Schaup to adjourn. Motion passed unanimously, 11-0-0 (Yes-No-Abstain).

8.0 Action Item Summary

- **Follow up on stats group requests related to the L-37-1 test**
  - o **Nick Schaup, Lubrizol (panel chair)**
  - o **Provide update at February 2025 panel meeting**

- **Where do we stand with the 155-2 approval matrix?**
  - o **Did the panel decide to request assistance from the stats group?**
  - o **Nick Schaup, Lubrizol (panel chair)**
  - o **Provide update at February 2025 panel meeting**

- **Continue to work towards a supplemental L-37-1 rating aid**
  - **Rating Task Force**
  - **Provide update at February 2025 panel meeting**

- **Investigate a roll-out plan for a color code calibration-based workshop for the gear tests.**
  - **Dylan Beck, TMC**
  - **To be prepared for February 2025 panel meeting**

Respectfully submitted,

Nick Schaup
L-37-1 Surveillance Panel Chairman

D02.B0.03

L-37-1 Surveillance Panel Meeting

11/13/2024

Nick Schaup

- Call to Order/Agenda review
- Meeting Minute Approvals
  - Aug 7th, 2024, Panel Meeting Minutes
- Membership review
- Hardware order update
- 155-2 Stats group recommendation
- Rater task force recommendation
- Old Business
  - ?
- New business
- Adjournment

Meeting Minutes Approval

- August 7th[th] , 2024 Panel Meeting Minutes

Membership Review

Rob Banas	ExxonMobil
Allen Comfort	US Army
Troy Muransky	AAM
Matt Sangpeal	Afton
Arjun Goyal	BASF
Amy Zyski	Dana
Dylan Beck	TMC
Jessica Carowick	Cummins
Anthony Lange	Intertek
Nick Schaup	Lubrizol
Caroline Mueller	SwRI
Rebecca Warden	Oronite

Total Voting Members = 12

Call for Secretary Volunteer

Gleason Hardware Order update

- Expected shipping date
    - 2/14/25 and 3/14/25

Update on 155-2 Oil targets

- Reached out on August 7th to stats group for recommendation. Have not heard back.

Rating Task Force Recommendation

Old Business

New Business

Adjournment

L37 Task Force – 2024/25

Overview of Objectives

Passion for Solutions®

Panel Requests

- 🔺 Rater Consistency
- 🔺 Rating to .5 units (Minimum)
- 🔺 Gear Reference Rating Aid
  - 🔺 *TMCGEARDISTRESS2010PR*

I was here first!

Numerical Distress Rating Scales for Gears

Numerical Value	Level of Distress
10	None
9	Trace
8	Trace-Light
7	Light
6	Light-Medium
5	Medium
4	Medium-Heavy
3	Heavy
2	Heavy to Catastrophic (Up to 50% of the Gear Tooth Surface not Ratable)
1	Heavy to Catastrophic (Greater than 50% and less than 100% of the Gear Tooth Surface not Ratable)
0	Catastrophic (100% of the Gear Tooth Surface not Ratable)

This is a continuous numerical scale and distresses between the defined levels can be expressed in tenths of a number.

III. **Exception to the Continuous Scale Rule**

This is a continuous numerical scale and distresses between the defined levels can be expressed in tenths of a number.

variety of different shapes, however, it is the raters' responsibility to estimate the size of the spall based on the geometrical shapes, or the measurements provided on the template, as a guide to determine the rating. It is then assigned the corresponding numerical or verbal rating.

- If a spall is determined to be larger than a particular template size, then the next more severe whole number rating should be assigned.

6/29/01   34

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July 2024 Rating Workshop

Rater Discussion Summary

- General Agreement - "Calibration" based workshop (i.e. Deposit Workshop)
  - Set baseline parts to be calibration parts for every workshop
  - Use target group of raters to set targets/baseline for the group
- Agreement that it is possible to move towards .5 merit rating scale
- Supplemental rating aid is desired by rating group
  - Ridging and Rippling (Coated vs. Uncoated)
  - Gleason specific – preferable to add to the current ASTM Manual 21
- Mixed agreement on mild rippling – especially 8-10
  - Gleason gears just do not show rippling until a severity level of 7?
- Clarification in Manual between "New" and "None"

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Supplemental Rating Aid Process (Gleason Pinions)

- **51 Pinion Sets**
  - Gears have been rated by Afton Raters, and sent to LZ on 10/25/24
- **Ridging/Rippling/Wear to be rated (1.0 Units)**
  - Ridging/Rippling Priority
- **Gears will be identified based on data set results**
  - Criteria - Whole/Half Merit based on data set (Average to scale)
- **Photos will be printed, and presented at January Workshop**
  - Photos do require ratings as well. This data will be crucial for accuracy
  - Photos do not always accurately represent level of distress
- **Best Candidates**
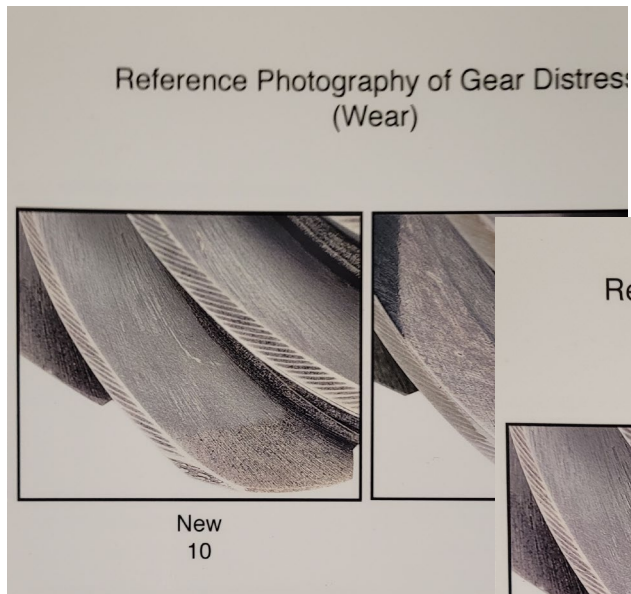 - Hardware/Photo ratings that are in closest agreement

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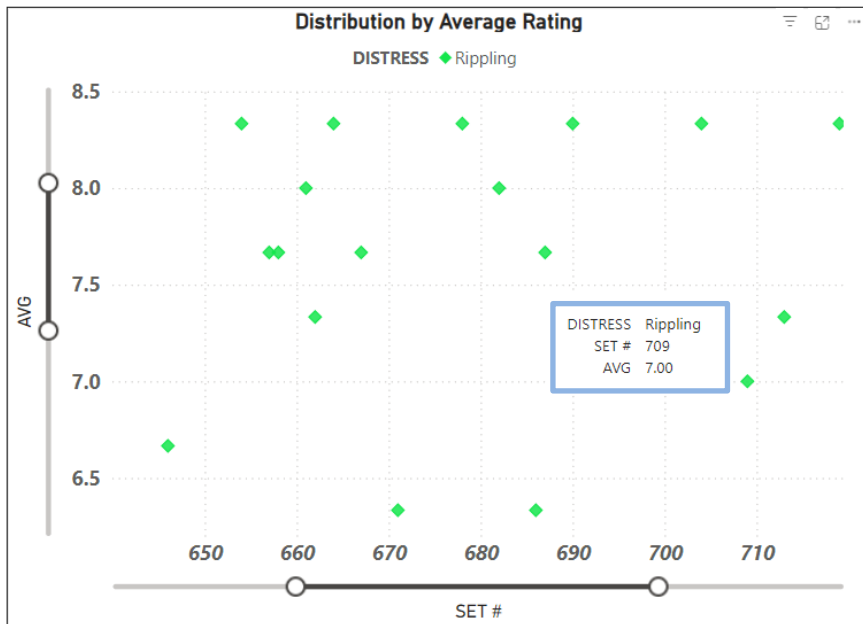Passion for Solutions®

"New" vs "None"

Reference Aids

- Wear/Rippling/Ridging state "NEW" = (10)
- Rippling/Ridging should state "NONE" = (10)
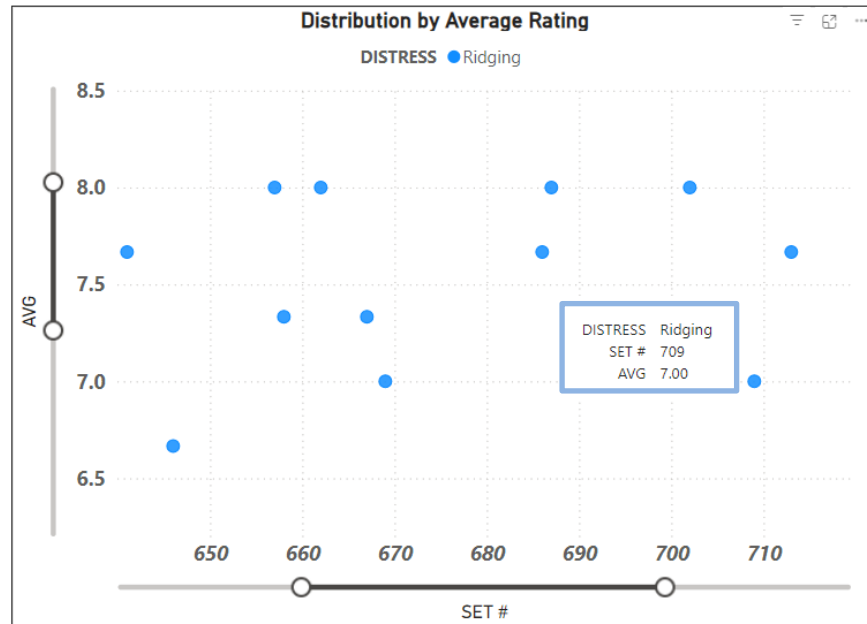- 10.0 = Absence of distress (p.37)

Test Parts

- Can no distress be present? **YES**

Reference Photography of Gear Distress (Wear)

New
10

Reference Photography of Gear Dist (Rippling)

New   Trace
10   9

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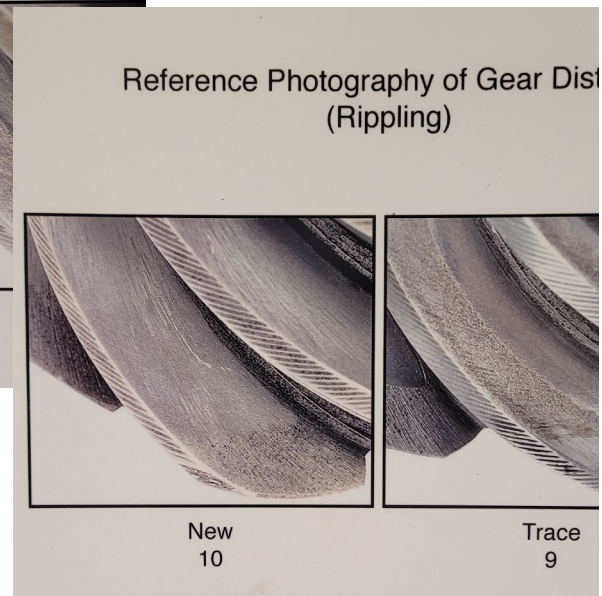
Rippling vs. Ridging Example

Appendix

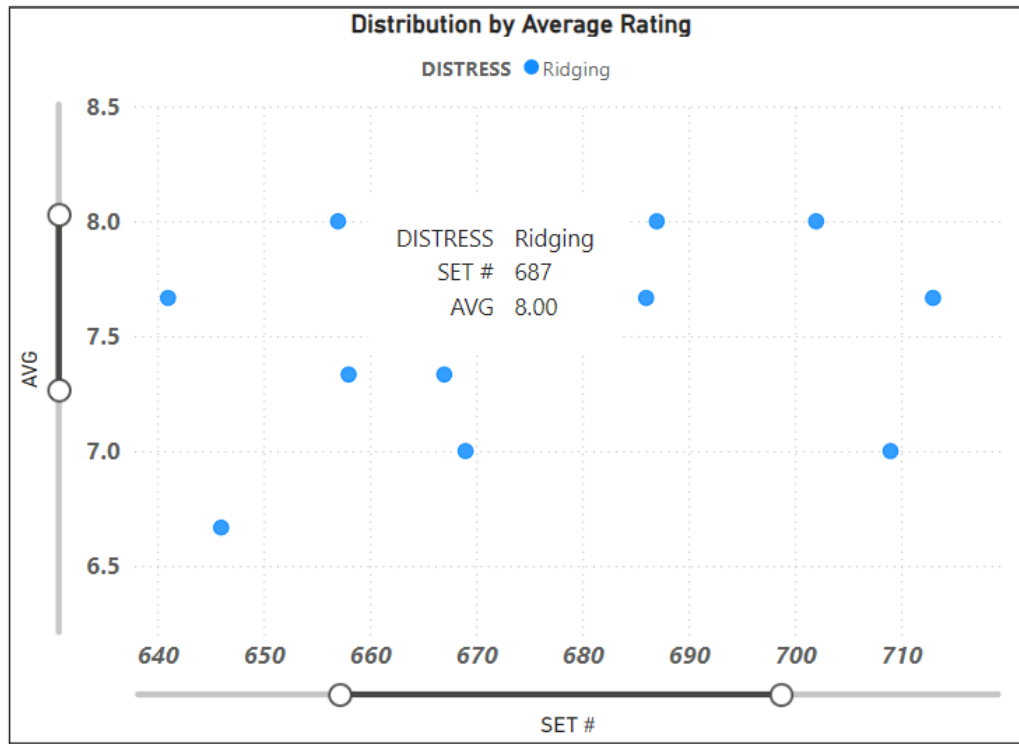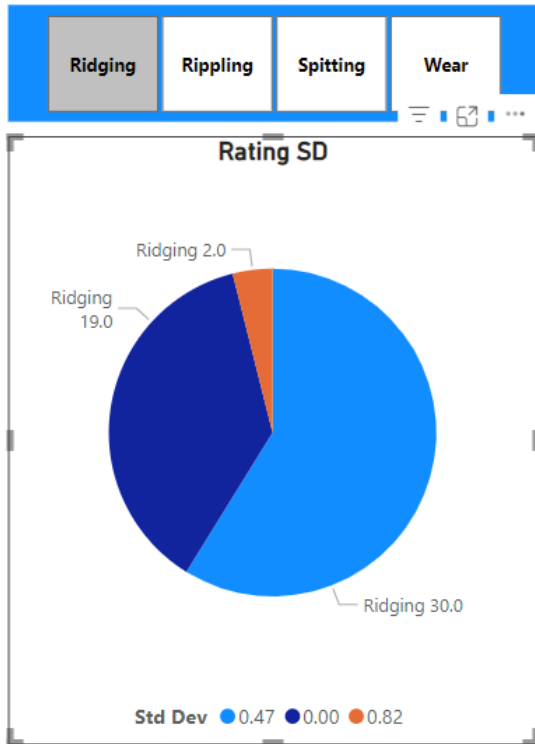# Outline of ASTM TMC Rating Workshop Data Analysis Method

1. Calculate the mean and standard deviation of all rated zones for all parts.

2. Convert each individual rating result to a standardized result (Y_i):

   $Y_i = $ (rating - mean)/standard deviation

3. Assess distribution of data using histogram of Y_i results. Investigate causes for any distribution that is not statistically normal and reject data where no resolution is possible.

4. Summarize standardized results for each rater across all parts and determine the following:

   number of Y_i values where $-1 < Y_i \leq 1$
   number of Y_i values where $-2 < Y_i \leq 2$
   number of Y_i values where $-3 < Y_i \leq 3$
   overall standard deviation of the Y_i s

5. Compare and group according to the criteria below:

Group	n*	Within ± 1 Y_i	Within ± 2 Y_i	Maximum Std. Dev.
Blue	6	85%	98%	0.75
Red	6	80%	95%	0.85
White	6	60%	90%	1.20
Yellow	-	-	-	-

* Varies by test area