ASTM INTERNATIONAL
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Gear Rating Workshop

The Gear Rating Workshop took place at Lubrizol in Wickliffe, Ohio on July 10th through 12th, 2018. Attendees were:

Joe Beard	Dylan Beck	Jonathan Bolaney	Vanessa DeCapite
Brian Foecking	Matthew Hayden	Brian Kozak	Chris Lonsway
Scott Parke	Greg Price	Jesse Rodriguez	Art Sanchez
Bobby Trevino			

Next Workshop: 01/15/2019-01/17/2019, Southwest Research Institute - San Antonio, TX

Tuesday, July 10, 2018

Workshop Began 08:45, set up was completed the day prior. Light meter readings were taken.

Intro covered general safety and building evacuation procedures.

Scott Parke informed that the next Gear Workshop would be held at SWRI January 15-17, and that the July workshop was scheduled for Week following July 4th at Afton in Richmond, VA for 2019.

Scott covered L33 severity issues presented by new AAM hardware driving the number of 8's up in known good formulations.

- Suggested that the core problem may lie with the rating scale in that the 8 on the scale encompasses a wide range on the scale. Expressed desire to determine a way to distinguish "Bad 8's" from "Good 8's".

- A proposed modified scale utilizing a 7 was passed around for discussion and would be tested later in the workshop.

Scott Parke presented the Requirements for Workshop Participation which highlighted requirements for new Raters as well as guidelines for workshop observers and chaperones.

- Presentation is attached

Calibration parts were laid out and calibrations Ratings began around 09:40. Calibration Ratings were completed when we adjourned for Lunch at 11:45.

Calibration data review began 13:00 and was complete by 13:45

Workshop parts were swapped, L42's were overnighted from TMC and ratings began by 14:00 and continued through remainder of day, workshop adjourned 16:30.

Wednesday, July 11, 2018

Workshop began 08:30, Light meter readings were taken.

- L42's received overnight were laid out for rating.

Ratings began at 08:30 and were completed when we adjourned for lunch at 11:30.

Data review began at 13:00 and was complete by 14:30

L33 proposed new scale was discussed.

- Wording for the 7 was modified and L33s were rerated utilizing new scale.
    - Using proposed scale found several of 8's now became 7's.
    - Proposed scale was found to be too broad and discussion was had regarding where the new discriminatory boundaries should lie to produce the desired result of discriminating "Bad 8's" from "Good 8's"
- Decision was made to reconvene Thursday at 10:00 to further test the proposed remodified scale.

Workshop adjourned 16:30, majority of rating areas were taken down and boxed leaving only remaining three L33 Rating stations.

Thursday, 7/12/2018

Workshop began 10:00. Light meter readings were taken.

L33 proposed scale was discussed again, including all proposed wording modifications.

- Proposed Scale is attached.

L33s were rerated and ratings continued until we adjourned for lunch at 11:45.

Data review began at 13:00 and results were discussed.

- Proposed scale modified results as was desired.

- Scale was easy to use. Counting 7 or more spots produced an 8, and using the 4mm² template for a Trace/Lt spall from the L37 templates was easy to discriminate larger spots for a "Bad 8" which would now be a 7.

Data and scale to be presented at August LRI to gather feedback and gauge interest in pushing and approving use of new scales.

- Discussed possibility of necessity for emergency L33 workshop should this scale be approved.

Discussed Gleason L37 pinion that was passed around. Shot peened surface shows no grind marks and peened surface gives a rippled appearance when not actually rippled. Encouraged raters to consider that when rating Gleason Hardware.

Workshop adjourned at 14:00, parts were repackaged for shipping. Tables were cleared and lamps were stowed. Art Sanchez thanked Lubrizol for their hospitality in hosting the workshop.

Light Meter readings attached.

07/10/2018	
Table 1	215
Table 2	262
Table 3	228
Table 4	230
Table 5	257
Table 6	323
Table 7	268
Table 8	245
Table 9	227

07/11/2018	
Table 1	226
Table 2	266
Table 3	231
Table 4	217
Table 5	269
Table 6	317
Table 7	220
Table 8	212
Table 9	217

07/12/2018	
Table 1	
Table 2	
Table 3	
Table 4	
Table 5	
Table 6	
Table 7	209
Table 8	216
Table 9	243

Minutes taken by Jonathan Bolaney.

Respectfully submitted,

Arthur Sanchez, Chairman
ASTM Gear Rating Task Force

ASTM GEAR RATING TASKFORCE
PANEL MEMBERSHIP

MEMBERS	COMPANY
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Barrera, Tony	Intertek
Bolaney, Jonathan	Lubrizol
DeCapite, Vanessa	Lubrizol
Dominguez, Lucio	Intertek
Foecking, Brian	Lubrizol
Kozak, Brian	Afton
Lopez, Frank	SwRI
Lonsway, Chris	Lubrizol
Rodriguez, Jesse	Intertek
Sanchez, Art *Ldr*	SwRI
Trevino, Bobby	SwRI

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Koehler, Brian	SwRI
Parke, Scott	TMC
Smith, Dale	Intertek PARC
Trader, Angela	Intertek
Venhoff, Wes	Lubrizol
Warden, Rebecca	SwRI

10 = absence of corrosion (same as before)

9 = up to 6 spots, each spot is smaller than 1 mm in diameter (same as before)

8 = 7 or more spots, each spot is smaller than 4 sq mm with the affected area not more than 1% of the rated area (the template for a trace/light spall can be used to determine 4 sq mm).

7 = Any single spot 4 sq mm or greater in area but not more than 1% of the rated area.

5 = over 1% and up to 5% of the rated area (same as before)

0 = greater than 5% (same as before)

Existing Scale:

Rust Levels: 10, 9, 8, 5, or 0 using these definitions:

None	=	10	
Trace	=	9	not more than six spots, each 1 mm diameter or less
Light	=	8	seven (7) or more spots less than1 mm in diameter or, one (1) or more spots greater than 1 mm in diameter with a combined area of all the spots no greater than 1% of the total rated component surface.
Moderate	=	5	in excess of above and up to 5% of considered surface
Severe	=	0	covering more than 5% of considered surface

Presentation to July 2018
Gear Rating Workshop
Lubrizol Corporation, Wickliffe, OH

Requirements for Workshop Participation

Deposit (Piston) Rating Workshop

- Industry workshop
  - Originally conducted by CRC, then SAE, currently TMC
  - Held semi-annually
  - Originally open to novice and experienced raters and general interest observers
  - Originally general, non-test-specific rating techniques
  - Originally included some training
  - Attendance mandated by some surveillance panels

Distress (Gear) Rating Workshop

...also bearings and seals

- Industry workshop
  - Originally conducted by CRC
  - Originally open to novice and experienced raters and general interest observers
  - Originally included some training
  - Held: as interest dictates

Distress (Gear) Rating Workshop

Problem: "as interest dictates"

- Gear surveillance panels have a need to reliably be able to calibrate/qualify their raters

Distress (Gear) Rating Workshop

- Solution: Current Gear Workshop
  - Surveillance panel-sponsored
  - Conducted by TMC
  - Held semi-annually
  - Test-area specific rating techniques
  - Hosted by currently active test labs
  - Open only to raters rating in those participating labs

Distress (Gear) Rating Workshop

- Who can attend?
  - Raters from participating labs
    - Undergone in-house (or contract) training alongside a calibrated rater
    - Submit a work resume to TMC for review

Distress (Gear) Rating Workshop

- What then?
  - Rater can attend workshop
    - After attending 2 consecutive workshops, rater may request RC parts
    - If not successful with RC parts, rater must attend another workshop before requesting additional RC parts

Distress (Gear) Rating Workshop

- So then rater is calibrated?
  - Yes.
    - Rater is calibrated for 3 months
    - Rater is eligible for 6 month cal on first RC calibration completed one year after first successful RC

Distress (Gear) Rating Workshop

- Who else can attend the workshop?
  - Only raters from participating labs
    - Sole exception: LRI reviewers

All others are expected to attend the Industry workshop held "when interest dictates"

Distress (Gear) Rating Workshop

- What about engineers or special cases?
  - In certain, limited cases observers are permitted under the following conditions:
    - Observer must register for workshop and pay registration fee.
    - Observer must be accompanied by a chaperone.

Distress (Gear) Rating Workshop

- What are the chaperone requirements?
  - Chaperone must have attended a workshop within the past 24 months.
  - Chaperone must have been a calibrated rater within the past 24 months.
  - Chaperone must register for workshop and pay registration fee.
  - Chaperone is not considered a workshop participant for test procedure calibration purposes.

Distress (Gear) Rating Workshop

- What are the chaperone requirements (cont.)?
  - A single chaperone may accompany a second observer if:
    - Both observers work closely together with the same company at the same physical location and have a pre-existing working relationship.
- The workshop can accommodate a maximum of 3 observers and their attendant chaperones.

7-10-18

LAB
LZ Brian Fochtman
Afton Matthew Haupt
INTERTEK
LZ Vanessa Delgado
Afton Brian Kozak
Afton Trey Price
SWRI Arthur Somers
LZ
AFTON Joe Beard
LZ Chris Lorsung

7-11-18 Workshop

LAB	SIGN-IN
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LZ	Chris Forsyth
SWRI	Anthony Sandy
INTERTEK	[illegible]
Afton	Brian Kocak
Afton	Matthew Hayek
AFTON	Jose Bigard
AFTON	G. Price
LZ	Vanessa De Carlo
LZ	[signature]