

Report of Meeting
L-60-1 Surveillance Panel Conference Call
February 9th, 2023

Attendees:

SWRI -	Mueller , Kostan, Charron, Grinfield
Lubrizol -	Venhoff, Slocum , Schaup, Drjla, Ariemma
Afton -	Sangpeal , Bell
Intertek -	Lange , Portell, Gutierrez, Lopez
TMC -	Beck
ExxonMobil -	Banas
BASF -	Goyal , Caridi, Mosher
Dana -	Zyski , Carr
Cummins-Meritor -	LaBond, Carter
Army -	Sattler, Comfort
AAM -	Muransky , Zarins
Shell -	Uy, Schwietzer
Navistar -	Morris
Daimler -	Neal
Fuchs -	Bender
Oranite-	Warren , Jackson
TEI-	Knight

Voting Members in **BOLD**

1.0 Membership Review

Motion #2 → Anthony Lange 1st /2nd Jason Carter to approve the addition of Rebecca Warden to the voting members of the L37-1 Surveillance Panel. Motion passed unanimously, 11-0-0 (Yes-No-Abstain).

2.0 Meeting minutes Approval

– November 10th, 2022, ASTM Meeting #207

Motion #1 → Nick Schaup 1st /2nd Troy Muranski to approve the meeting minutes from the November 10th, 2022, ASTM Meeting. Motion passed unanimously, 11-0-0 (Yes-No-Abstain).

3.0 L-60-1 Severity Task Force action items

- Lubrizol to prep and ship gears and strips
- Labs to preform same experiment over again

4.0 Gear Analysis

- Matt Sangpeal and Nick Schaup to determine date for conference call with Hans-Willi
- Presentation embedded in appendix

5.0 Flow Meter Part Number

- Email vote to come out shortly with new verbiage to allow for technically equivalent P/N

6.0 Old Business

7.0 Adjourn

Motion #3 → A. Lange 1st /2nd W. Venhoff to adjourn. Motion passed unanimously, 11-0-0 (Yes-No-Abstain).

Respectfully submitted,

Nicholas Schaup
L-60-1 Surveillance Panel Chairman



D02.B0.03

L-60-1 Surveillance Panel Meeting

02/08/2023

14:00 pm– 15:00 pm

Nick Schaup

Agenda

- Call to Order/Agenda review
- Membership review
- Meeting Minute Approvals
 - Nov. 9th 2022, ASTM Meeting
- L-60-1 Severity Task Force Follow-up
 - 4 run follow up – repeat
 - Gear analysis results discussion
- Sierra flow meter P/N discussion
- Old Business
- New business
- Adjournment



Membership Review

Allen Comfort	US Army
Amy Zyski	Dana
Arjun Goyal	BASF
Anthony Lange	Intertek
Jason W. Carter	Cummins - Meritor
Dylan Beck	TMC
Nick Schaup	Lubrizol
Matt Sangpeal	Afton
Caroline Mueller	SwRI
Rob Banas	ExxonMobil
Troy Muransky	AAM

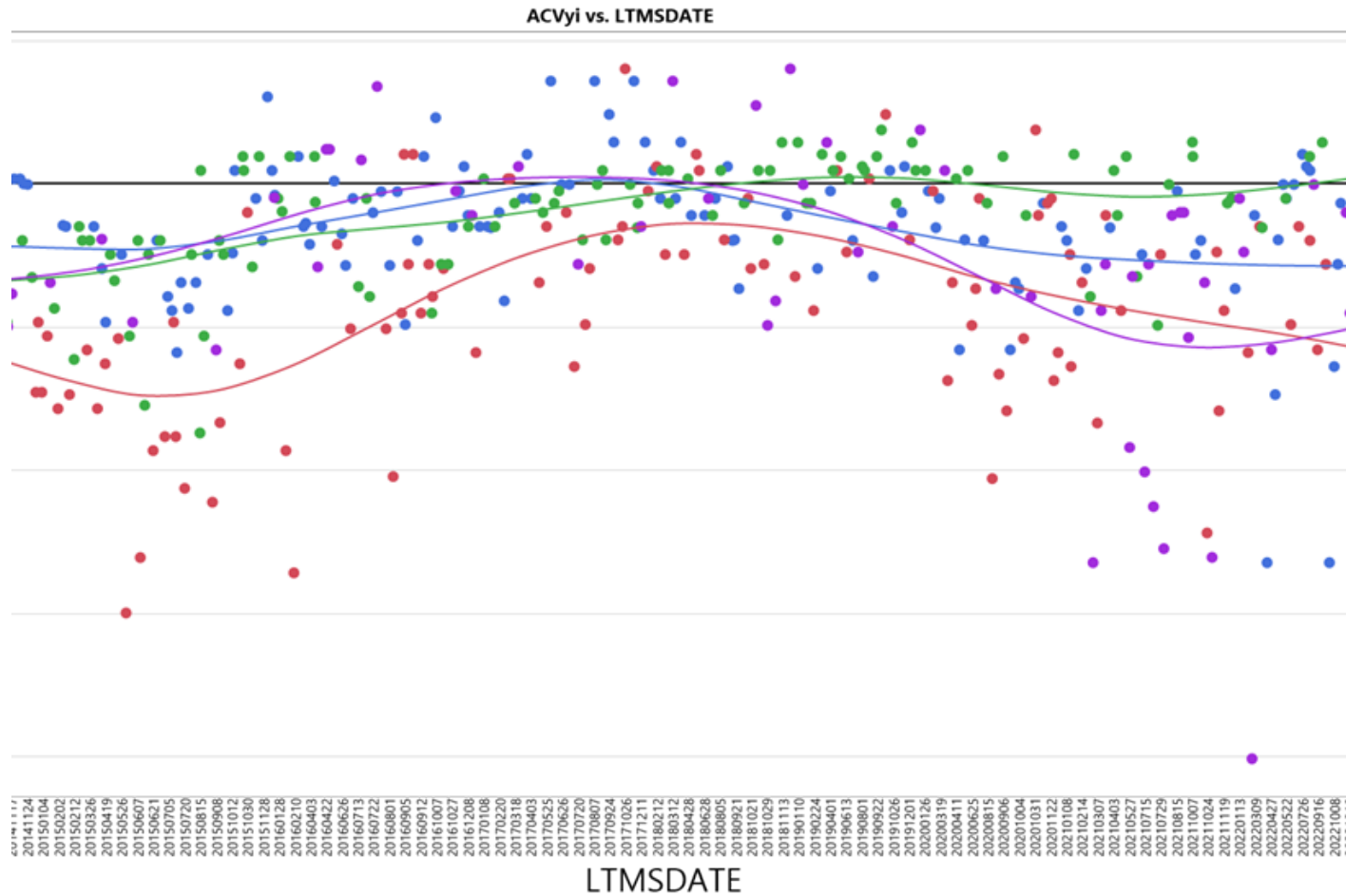
Meeting Minutes Approval

– November 9th, 2023, ASTM Meeting

L-60-1 Severity Task Force Follow-up

- 4 run set up
- Most severe lab to prep and send out
- Dates that work for everyone

Notes for prep



Notes cont.

- It's between Lab B and Lab G. The plot below shows the ACV Y_i value over time by Lab. As you can see, the moving average lines are very similar in recent history between those two labs. I would say that it seems like Lab B is more consistently severe. The Lab G data is more variable and though they have some really severe results, they also have more close to target.

Failure Analysis

Test gears

Dipl.-Ing (FH) Manfred Herz

Dr.-Ing. Hans-Willi Raedt

Content

Examination Request

Examination – Optical, SEM and Metallography

Summary and Conclusion

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Examination Request

- Material Number, Part Name
 - 3 Gears, numbered 06-18-48; 11-00-01; 12-11-34
- Customer, Customers Drawing Number
 - Afton Chemical
- Manufacturing Number, Part Number / Serial Number
 - tbd
- Reason / Aim of Examination
 - Different results in test for lubricants

Information provided by applicant

Quelle/Source:

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Examination

- Provided Samples
 - Optical surface investigation
- Sample taking
 - Cutting piece of each gear
 - Nital etching
 - Imaging with optical microscope
 - Imaging with SEM
 - EDS Mapping

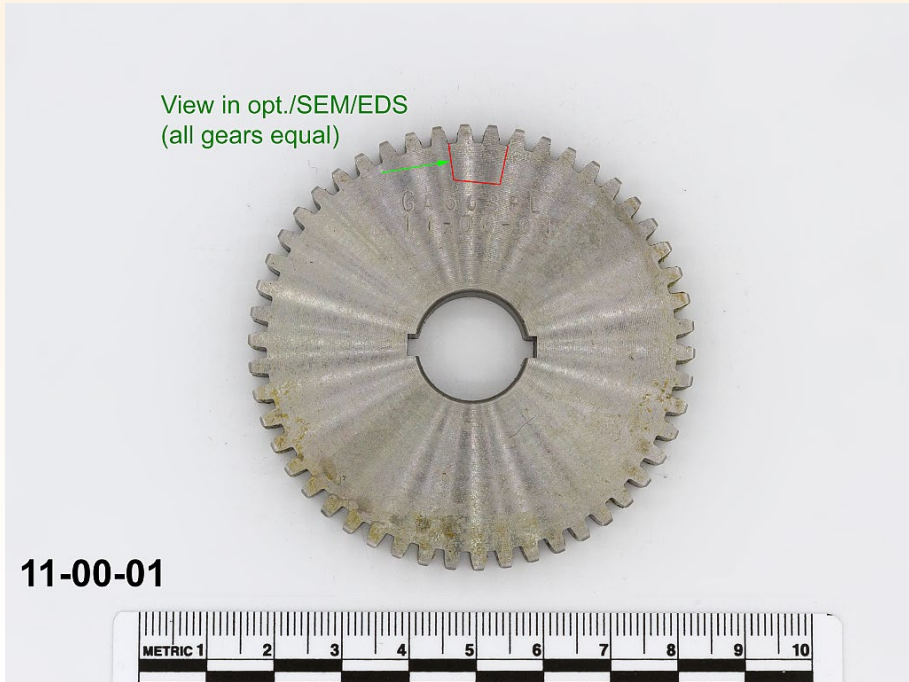
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Examination – part 11-00-01



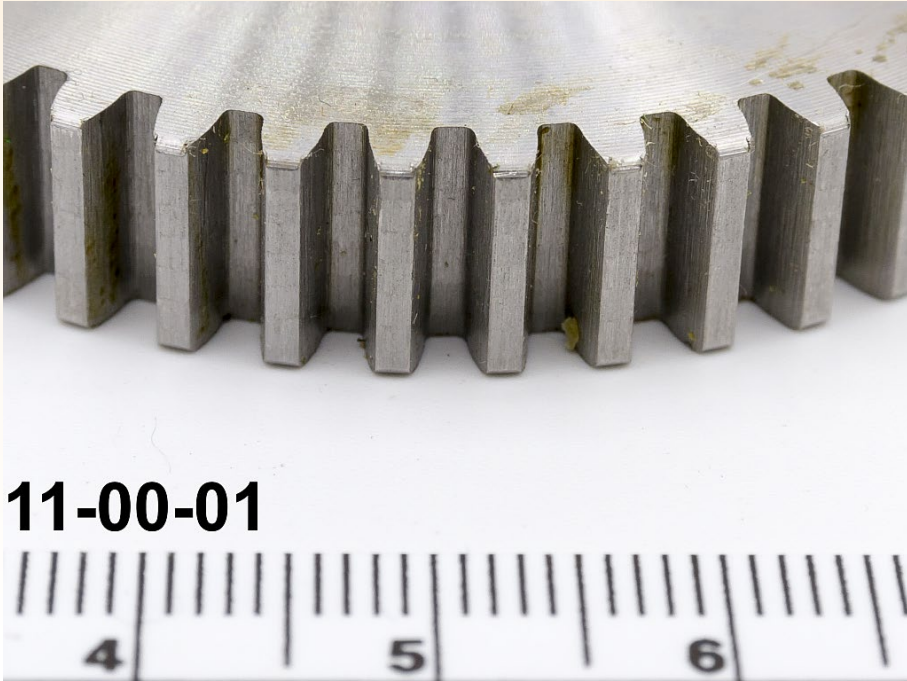
- Part in condition as delivered
 - Machined surface

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Examination – part 11-00-01



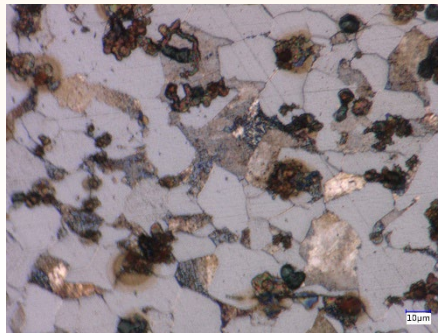
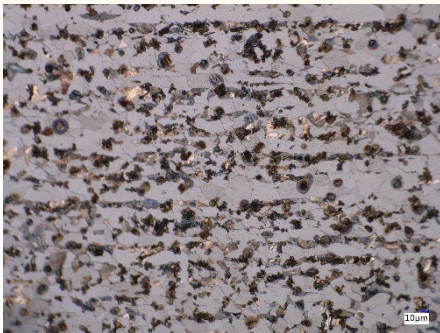
- Part in condition as delivered
 - Machined surface
 - Some residues from packaging paper

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Examination – part 11-00-01



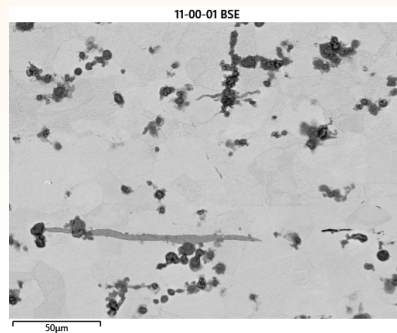
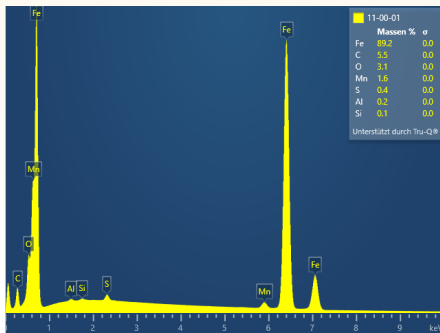
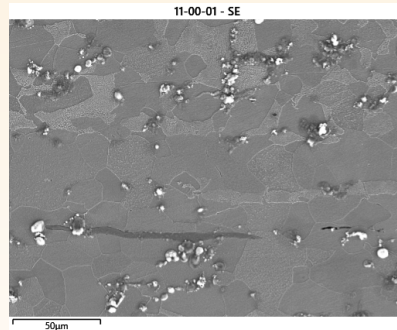
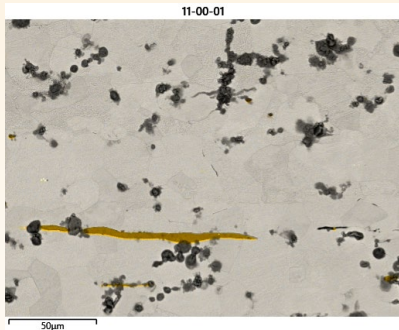
- Part cross section, nital etched
 - Microstructure ferrite/pearlite with some manganese sulfides

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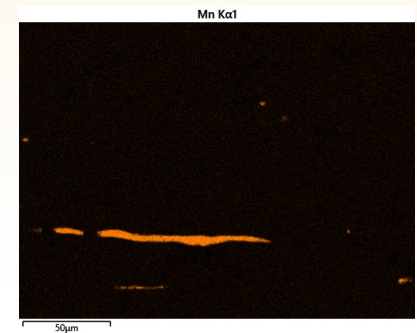
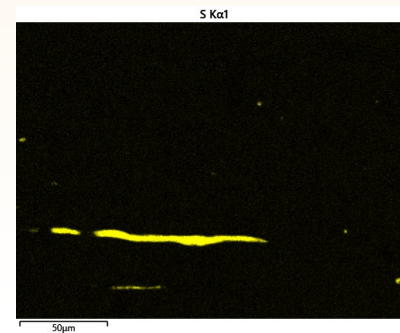
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Examination – part 11-00-01



- Part cross section, nital etched
 - Microstructure ferrite/pearlite with some manganese sulfides

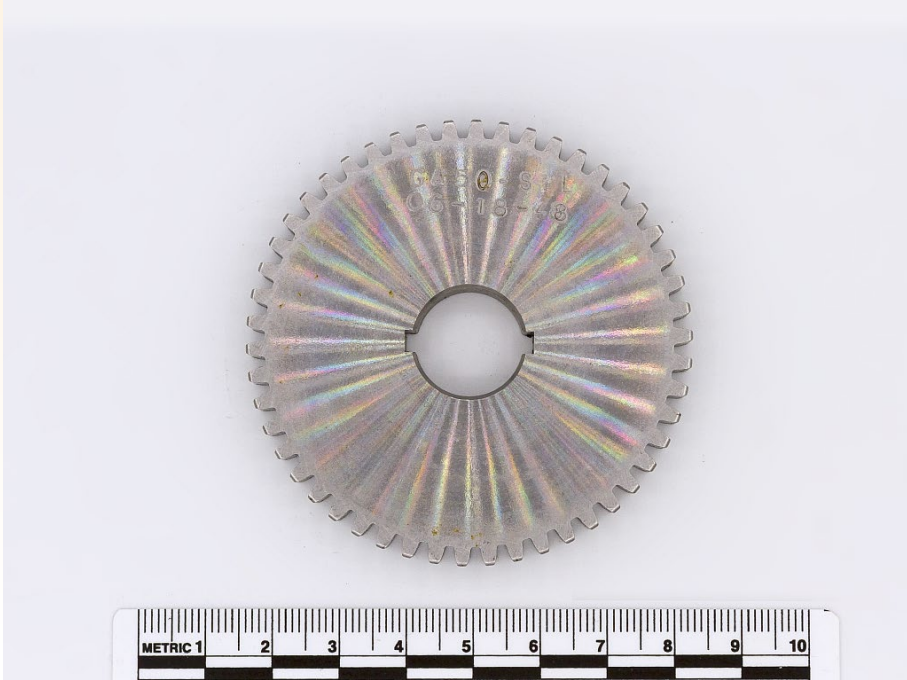


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Quelle/Source:

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Examination – part 06-18-48



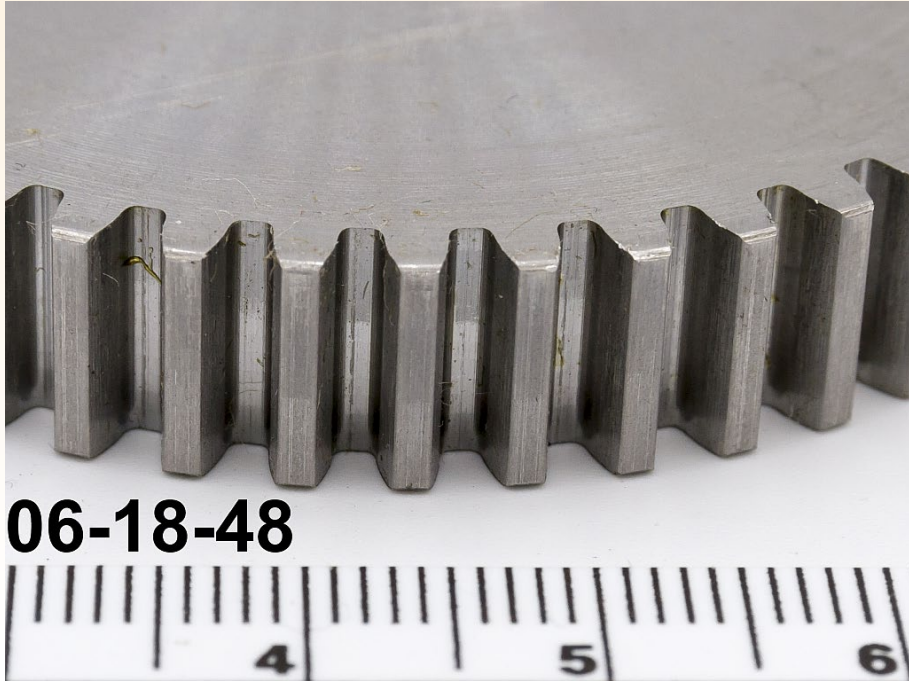
- Part in condition as delivered
 - Machined surface

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Quelle/Source:

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Examination – part 06-18-48



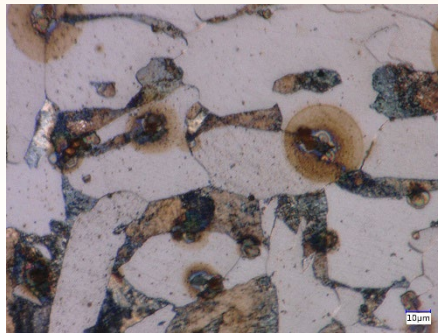
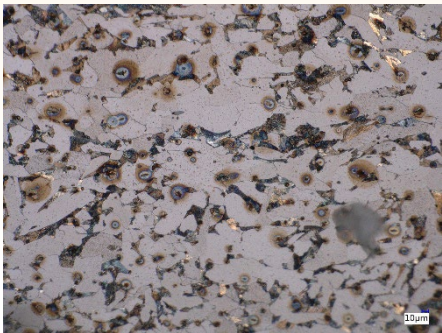
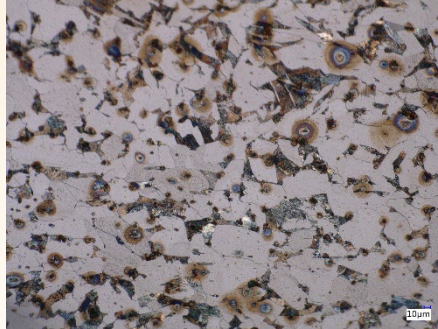
- Part in condition as delivered
 - Machined surface

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Quelle/Source:

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Examination – part 06-18-48



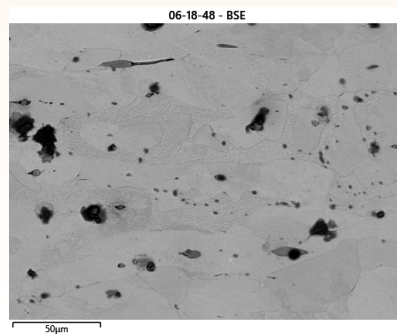
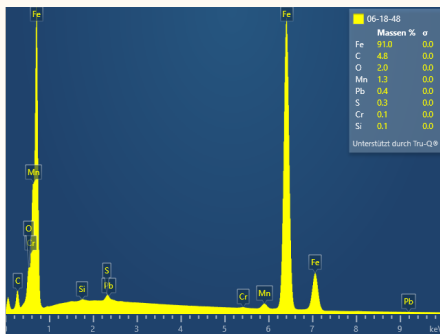
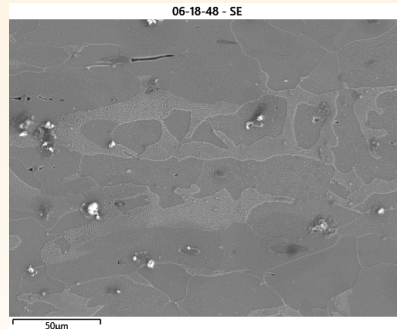
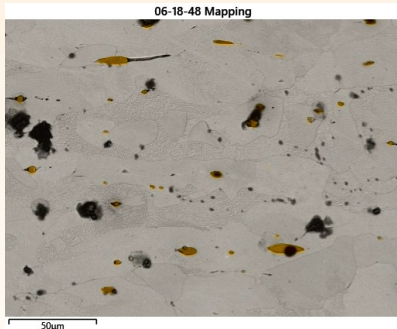
- Part cross section, nital etched
 - Microstructure ferrite/pearlite with some manganese sulfides

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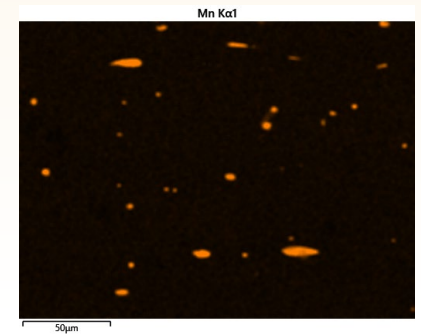
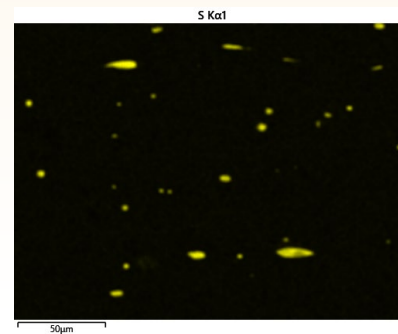
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Examination – part 06-18-48



- Part cross section, nital etched
 - Microstructure ferrite/pearlite with some manganese sulfides



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Examination – part 12-11-34



- Part in condition as delivered
 - Shot peened surface

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Examination – part 12-11-34



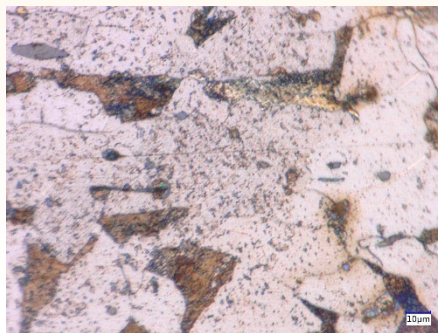
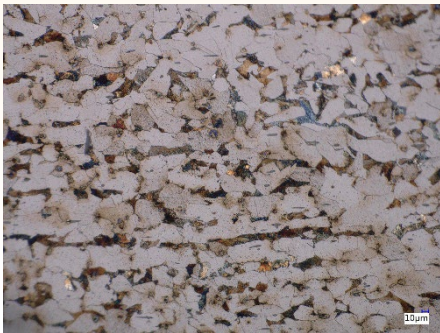
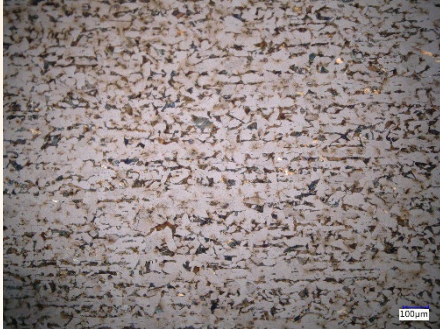
- Part in condition as delivered
 - Shot peened surface

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Examination – part 12-11-34



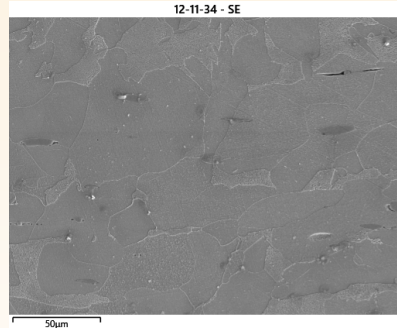
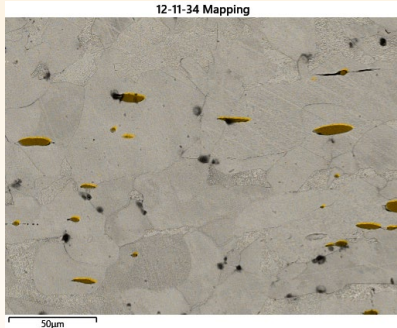
- Part cross section, nital etched
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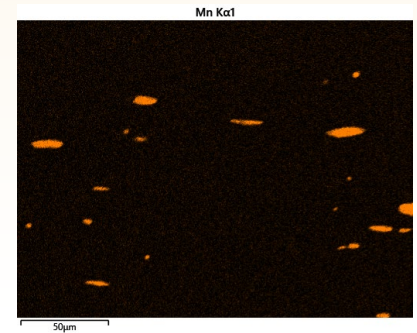
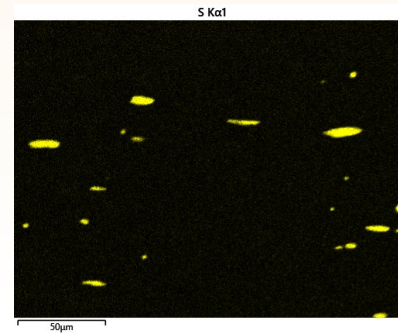
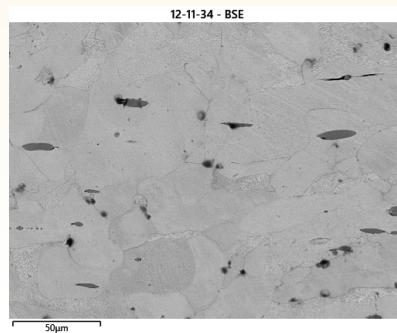
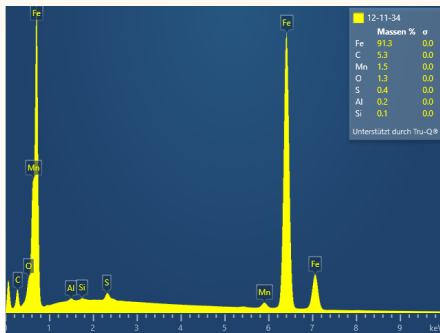
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Examination – part 12-11-34



- Part cross section, nital etched
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Summary and Conclusion

- Gears were delivered in different conditions
 - 11-00-01 and 06-18-48 machined
 - 12-11-34 shot peened
- No significant difference in microstructure was examined
- Gears were not in condition prepared for test due to customer information
- No reason for different test results observed
- Further investigation may be taken in final testing condition
- Further investigation may be taken for red substance on surface after test which determines test result

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Sierra flow meter P/N discussion

- Sierra flow meter P/N is obsolete, update procedure to reflect new equivalent P/N



D02.B0.03

Old Business

New Business

Adjournment