

## Rich Grundza

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**From:** Szappanos, George <George.Szappanos@lubrizol.com>  
**Sent:** Wednesday, June 03, 2015 3:58 PM  
**To:** Altman, Ed  
**Cc:** Romano, Ron (R.) (rromano@ford.com); Rich Grundza  
**Subject:** RE: Chain Wear minutes

Meeting at SWRI, June 3, 2015, chaired by Ed Altman.  
Specific action items are underlined.

- 1) Attendance.
  - a. Mike McMillan and Ron Romano, (Ryan Reith?), Matt Bowden, (someone from Oronite), and Gordon Farnsworth on the phone
  - b. Attendance according to sign-in sheet
- 2) Ford Presentation
  - a. Ron and Doyle provided an update
  - b. 4 labs included in prove-out testing (SWRI, IAR, Ashland, Afton)
  - c. 2 test on both oils required at each lab for prove-out
    - i. Ashland needs two more tests on low wear oil
    - ii. Afton needs 1 more on the Ford oil
  - d. Most tests being run to 312 hrs, with data taken at 216 and 264 also
    - i. 216 hrs being considered as final duration based on analysis of all test lengths
    - ii. Longer test length does not appear to offer additional differentiation
  - e. Chart of wear vs hours shows good separation between oils based on P-value at each interval
  - f. Low wear oil shows 40% less wear than Ford reference oil
  - g. Table was presented by Doyle showing the range of acceptable chain wear determined based on natural log transform, at 95% confidence level
    - i. Transform used because the variability increases with the magnitude of the wear measurement (at each hour interval)
    - ii. "Table not to be used for determining discrimination" (Doyle)
  - h. Regression analysis
    - i. Oil effect is strongly significant at each hr interval
    - ii. Some lab effect at 216 hrs and 312 hrs
    - iii. Low n-size means that the variability assessment of the test is volatile
  - i. Ron- CWT development group feels that 216 hours is sufficient duration for discrimination
    - i. Ron makes motion that the test duration is 216 hours with no intermediate measurements after break-in
      1. Seconded by Al Lopez
      2. Amol suggests a standard/baseline oil for break-in to reduce variability of amount of break-in wear
      3. 10 yes, 0 neg, 0 waives
      4. Action item: test procedure needs updated with this information

- 3) Field correlation
  - a. No data on different oils from field, only chain types
  - b. M. Conrad asks what the max acceptable field stretch value is; Ron says data confidential
  - c. Ron explains that because engine test shows that the good oil improves wear, it should translate to an improvement in the field
  - d. Ron estimates the P/F limit to be 0.07% at 216 hrs
- 4) Reference oils
  - a. The current two oils, plus Tech 1 (0W16)
- 5) New Test Readiness Checklist
  - a. Ron presented a slide showing everything complete
  - b. Some complaints on the completeness of the procedure (posted on TMC site)
  - c. 0W16 based on low wear oil is scheduled to be run
    - i. To validate that the engine can run on low viscosity oils without damage
    - ii. SWRI and IAR will perform 144 hour intermediate measurement
    - iii. Andy Ritchie offered up his data on a 0W16 and IAR says there were no operational issues
- 6) Operational data review
  - a. To occur at the lab visits
  - b. Action item: labs to provide their data to TMC before the lab visits
- 7) Task force is voting on June 11<sup>th</sup> as to “matrix readiness”
  - a. Question about whether the vote should occur after the 0W16 run is complete
  - b. Question on delaying the June 11 vote till just before the AOAP meeting
- 8) Parts Availability
  - a. May need to procure another engine purchase (Valencia, Spain), as some labs need to more engines very soon
  - b. Must buy 96 engines at a time; long lead time
  - c. Action item: labs to develop a list of parts/engines they need
  - d. Action item: Ron to figure out what the production life of the engine is
  - e. Bob C: how do we secure a large batch of chains
    - i. Ron: Borg Warner can supply those chains without issue
- 9) Next meeting is June 11

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**From:** Altman, Ed [mailto:Ed.Altman@AftonChemical.com]  
**Sent:** Wednesday, June 03, 2015 12:15 PM  
**To:** Szappanos, George  
**Subject:** RE: Chain Wear minutes

Cool! Thanks.

*Ed Altman*  
R&D Supervisor

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**From:** Szappanos, George [<mailto:George.Szappanos@lubrizol.com>]  
**Sent:** Wednesday, June 03, 2015 12:13 PM  
**To:** Altman, Ed  
**Subject:** RE: Chain Wear minutes

sure

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**From:** Altman, Ed [<mailto:Ed.Altman@AftonChemical.com>]  
**Sent:** Wednesday, June 03, 2015 12:12 PM  
**To:** Szappanos, George  
**Subject:** Chain Wear minutes

George,

You interested in taking the minutes for the Chain wear meeting today? I'll be in front and can't do both.

-Ed

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