

# ASTM Chain Wear Task Force Conference Call

## Wednesday 17<sup>th</sup> August, 2016

**Written By: Al Lopez**

### **Attendees:**

- See attached attendance list:



Attendance 081716  
Telecon.pdf

### **Completed Action Items:**

- LTMS data review by Statistician Group – preliminary done with concerns that are under discussion.
- Hardware Order Solicitation – Engines, pistons and critical hardware
  - Piston orders are being submitted to FCS
  - Added European lab to parts offering
  - 70 day lead on the piston
  - Industry order for more engines and supporting hardware will be compiled when the new solicitation is received. MOQ and pricing revisions may be seen.
- Engine Build Round Robin – cam installation SWRI / IAR –completed (07/27/16). The SWRI build crew visited IAR for a build procedure review and stand inspection. No differences were seen in how the two labs install the cams, test chain and sprockets. The Ford build procedure is being followed at both shops. The IAR CW test stands were inspected by the combined lab mechanics. A difference in blowby stack was noted. Felt was to change the SWRI stack to match that of IAR. The concern was that more drain back was happening at IAR. Recent Toyota test results with revised blowby and crankcase pressure conditioning have shown increase wear. The same may apply to the CW test.

### **New Action Items:**

- The Labs will have a meeting to discuss CAN bus data. (hardware, software and possible filtering)
- Labs to “clean-up” data files for further operational review. Any zeros and erroneous data has contaminated the plots and made the operational review difficult to correlate to severity.
- Test validity of Lab D test 114666 will be revisited by the task force.
- All test Labs to submit piston orders to FCS. MOQ will not be met – Ron to contact supplier.
- Ron to forward new engine and hardware solicitation

### **Precision Matrix Data Review:**

- See attached Statistician Team presentation of PM and additional test data.
- There were 3 concerns with the matrix data

- Lab-oil interaction
- Operational differences between labs
- 4 standard deviations between labs using the existing data



Chain Wear PM  
Analysis Initial Conce

- The RO 270 test at Lab G with a result of .1572 was a statistical outlier.
- Test 114666 from Lab D has been requested to be re-run by the statistician team and indicated in the report.
- Operational differences were discussed. The discrepancies in the statistical review were in part caused by erroneous data. The task force has an action item to re-submit the test report data after a cleaning of zeros and any other bad quality data.
- The additional test from Lab A was discussed and it was unclear from the Exhaust Cam data plot in the presentation that any change had occurred in control. Felt explained the issue of data acquisition and reassured the forum that the test did have more cam variability. This brought up a concern of CAN data acquisition and possible filtering. An action item was made to have the labs meet and review data acquisition hardware, software and possible filtering of the CAN signals.
- The Lab A additional test result followed the theory that severity increased with more cam variability. However the change of severity of roughly 20% was small compared to the results seen in Lab G for oil 270.

### **Path Forward**

- Reevaluate the operational data after bad quality data is removed
- Consider a DOE to further observe operational influence on results
- Conduct development team meetings to discuss CAN data recording and other operational differences.
- Discuss validity of Lab D test 114666

### **Hardware Update**

- 2014 engine batch life for CW is 2-3 months.
- Labs are submitting piston orders to FCS – 70 day lead time once order is finalized.

### **Next Conference Call:**

- A development team meeting is scheduled for Thursday the 25<sup>th</sup> of August.