ASTM Chain Wear Task Force Conference Call
Thursday 24th, August 2017

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Agenda:

1. Update on testing and current events
2. Statistician presentation
3. Hardware

Attached is a summary of the meeting agenda items:

Chain Wear Test Update 082417.pptx

Statistician Report:

Chain Wear PM and PostPM Analysis - SG

Meeting Notes:

- Doyle Boese presented the statistician report.
    - Oils 271 and 270 show discrimination and no overlap
    - There is a blowby configuration interaction. Current BB stack configuration appears to generate different results but it is a small data set.
    - Doyle stated that the PM data should not be used and a recommendation was made to run more tests. 12 tests are requested – 4 at each lab using oil 270 and 271.
- Discussion on the data set followed the presentation. Some task force members stated that all of the data should be used and the effects on the test from the BB stack were not significant.
- Doyle isolated the last 8 tests that were conducted on the final BB stack configuration and stated that this tight group of data was now indicating new severity levels (Slide 9 – Stats Report)
- A plot of the data including additional 2 points with 2016 engines and BC pistons was shown (Slide 5 – CW update). This data does show a good fit in the general distribution of all data generated to date. When viewed alongside the 8 points in Slide 9 there is a clear difference. The debate then started that new piston tests would need to stand alone and all other data discarded. The general consensus at that point in the meeting was to finish running the 2 tests at each lab and then review the data.
- Lab Status (2 tests required, 270, 271)
    - Intertek – 2 tests completed (same stand), data seen on the attached plot.
    - SWRI – 2 tests started (2 stands)

- Afton – 1 of 2 tests started

Hardware Update Pistons Rings:

- At the last combined meeting of the LSPI and CW task forces, a decision was made to use all 2016 engines with BB pistons for LSPI and all 2016 engines with BC pistons for Chain Wear. This decision was made after discovering the BB pistons in 96 of the engines received and after realizing that our major piston purchase of 2014 design pistons were not usable as replacements for BC pistons. Please refer to meeting minutes below for a more detailed explanation of the Engine/Piston situation

LSPI_CW_TF_20170720_Minutes.pptx

- The direction taken with engine/piston usage in the two test types (CW LSPI) requires us to
  - Use 2014 rings with the BB pistons. (LSPI only – use rings that are in the 2016/BB engines)
  - Use rings of different design with the BC pistons.
- For Chain Wear, we are now in need of a lifetime supply of BC piston rings. The quote below includes BC pistons and a new part number.

Ford Service Part Number	Ford Engineering Part Number	Customer Part Number	Description
AG9Z6108Q	GM5E6110AA		PISTON
EJ7Z6148A	EJ7E6148AA		KIT - PISTON RING

- The solicitation for these pistons and rings has been sent to the labs and final order quantities are due September 13th.

Hardware Update Critical Parts:

- The combined industry order for critical hardware was submitted and parts are on their way.
- For the diamond cam washer order, there is a change in minimum order quantity. The labs discussed the need for this washer. Below is the presentation that Jason provided to describe the original cam phasors, washers, chain, tensioners and crank gear. The intent of our ongoing endeavor is to maintain consistency in the critical hardware. However the cam phasors had a running change in the production line and no longer use the diamond cam washers. A decision was made that we should keep using the washers since that is how the test was developed. FCS has since been able to source the washers without us having to meet the minimum order quantity.
- The crank gear also uses a diamond washer in the original 2014 engines. A running change has been made and the superceded crank gear no longer uses the diamond washer. The new crank gear is .005 inches wider to make up the difference in the missing washer.

- These critical timing components have been purchased in large quantity in the past to fit the 2014 engines for six runs. The current solicitation is a lifetime purchase. With the running changes, the task force or SP will need to coordinate bringing new hardware batches in on reference tests.

CW Cam Phasor Review.pptx

Next Meeting:

- Last week of September to review data from BC pistons.