

Ford LSPI Task Force Conference Call – 10/06/2016

Attendees:

| Name | Company |
|--------------------|----------------|
| Christian Porter | Afton |
| Rich Grundza | ASTM-TMC |
| Sydelle Elshenawy | BP |
| Jordan Smith | ExxonMobile |
| Ron Romano | Ford |
| Mark Overaker | Haltermann |
| Jason Soto | IAR |
| Al Lopez | IAR |
| Doyle Boese | Infineum |
| Gordon Farnsworth | Infineum |
| Kevin O'Malley | Lubrizol |
| Greg Miranda | Lubrizol |
| Joe Gleason | Lubrizol |
| Matt Bowden | OHT |
| Kaustav Sinha | Oronite |
| Josephine Martinez | Oronite |
| Jeff Hsu | Shell |
| Felt Mounce | SwRI |
| Travis Kostan | SwRI |
| Cole Hudson | SwRI |
| Dan Lanctot | TEI |
| Nate Bean | Valvoline |

Meeting Discussion:

1. Task force met to discuss LSPI Precision Matrix operational data review.
 - 1.1. Development team met on 9/29/2016 to review all LSPI operational data. All data was found to be operationally valid.
 - 1.2. Op Data review highlighted some variances in non-controlled parameters that will be investigated further by the team, including:
 - 1.2.1. Boost Pressure changes within a test and between tests.
 - 1.2.2. Potential data from a shutdown was included in the op data from test 117632. Lab verified this was shutdown data.
 - 1.2.3. Erroneous Coolant In Temperature reading on Test 119944, due to bad thermocouple. This was a non-controlled parameter, and has been removed from the operational data set.
2. Comments and questions made during task force meeting:
 - 2.1. Test 114973 had a high PP threshold on iteration 3, cylinder 3.

- 2.2. How will the labs verify hardware used on future runs is correct? Need a way to verify the pistons and rings used are of the correct 2014 style design. Also need to document where each head comes from
- 2.3. TEI to perform all ring tension measurements. TEI to send out details on the method used to make these measurements for inclusion in the test procedure.
- 2.4. The new pistons that were ordered will need a broker to import them to the labs. Labs will use TEI as the broker.

Motions:

1. Motion - Operational Validity for all PM tests have been reviewed and are acceptable. Task Force instructions statistical group to perform their analysis. - Motion by Rich Grundza
 - 1.1. Motion Discussion – Labs need to verify they are all using the same LSPI evaluation method before this motion can be voted on.
 - 1.2. Motion Result - Tabled pending LSPI evaluation verification

Actions:

1. All labs to send one test (4 iterations) of AVL data to each of the other participating labs to validate LSPI evaluation method. Please send 175,000 cycles for each iteration to include PMAX, MFBH2, PMINV, and PMAXV. Labs will send data out on 10/5/2016, and plan to meet on 10/7/2016 to review results. – LZ, SwRI, and IAR
2. All labs to review the submitted build data and make corrections if needed. All units should match the FLSPFI Industry Report template - LZ, SwRI, and IAR
3. TEI to send details on ring tension measuring procedure to be included in the test procedure. – TEI
4. All labs to send PO information for new pistons to TEI so they can quote the brokerage fees. – LZ, IAR, SwRI, and Afton

Next Meeting

The next meeting will be scheduled after the labs have reviewed the LSPI evaluation method. Goal is to meet the week of 10/10/2016