

## T13 Taskforce Meeting – 1/14/15, 8:30am EST

Attendance: Sean Moyer (TMC), Mark Sutherland (TEI), Jim Moritz (IAR), Bob Salgueiro (Infineum), Pat Fetterman (Infineum), Elisa Santos (Infineum), Robert Warden (SwRI), Kevin Omalley (Lubrizol), Ravi Tallamaraju (Lubrizol), Mike Conrad (Lubrizol), Luiz Garcia (IAR), Christian Porter (Afton), Bob Campbell (Afton), Greg Shank (Volvo), Mike Alessi (XOM), Riccardo Conti (XOM), Mark Cooper (Oronite), Jim Rutherford (Oronite)

Phone: Jim Matasic (Lubrizol), Jim Gutzwiller (Infineum), Allison Athey (Volvo), Jim McCord (SwRI)

### TEI Update

- Large batch of bearings (rod bearings, A batch) were made, some had a rough surface finish that are being rejected (~60%). About 1003 sets left to inspect, 779 were found to be bad. Original order was 2500. We will likely have to order a new batch soon.
  - Some are on the verge of 100-grit sandpaper
  - All from the Mexico plant, one large batch made within a week.
- Cylinder head assembly part number has changed from 22251160 to 22498402
  - Valve stem seal new number 21990221 is the change reflected
- Some oil rings have been seen with a red dot on them. These are incorrect; we should be using the green dot. The red dot is for the wrong year.

### Operational and Chemical Data Review

- Photo shown had no official story behind it, so Jim made one up.
  - Jim didn't quite remember the guitar, but found it interesting that it was an electric, but a microphone set up for it to be an acoustic
  - Also had a capo on the 3<sup>rd</sup> fret, which he didn't remember ever playing a song with
- 32 tests on matrix oils completed and used from LTMS data, few less for operational data based on test completion time/date
- An oil jet pressure plot was shown for Oil A. One Lab A run had very high oil jet pressure while one Lab B run was very low. Lab G had a large amount of noise in the signal. A second Lab A run and the Lab D run fell nearly on top of each other
- Lab A Stand 2 Oil F appears to be on the mild side. This run was not the high oil jet pressure test previously noted. Oil F at lab G appeared to be on the severe side. The operational data was not in the file for comparison, but the lab G result appears to be lower.
- Stretch Break according to the presentation computer
- For oil B, there appears to be two groupings, one entirely flat (Labs A and D) and the other with a slight break (Labs G and F)
  - The high breaking values on oil B and oil F for Lab G were both stand 2, but different engines and oil filter heads
- KV40 based top and bottom test results were identified for further operational review

- Oil A
  - Severe: None
  - Mild: Lab D stand 1, Test key 103527, engine 142(engine 2)
    - Lowest sump temp by 1.5C
- Oil B – flat to slight climb, 2 groupings and one outlier
  - Severe: Lab G Stand 2, TK-104623 engine 89024263
    - Highest sump, low Jet
      - Lab G stand3 was severe, had high sump temp, but higher jet P
    -
  - Mild: Lab A Stand 1 (TK-103550, eng 920867), Lab D stand 1 (TK-103551, eng 142)
- Oil C – oil climbs
  - Severe: Lab B Stand 1, TK103676. Engine 1389023341
    - Right in the middle
  - Mild: None apparent
- Oil D
  - Severe: Lab F stand 1, Test Key 103773, engine 122410008
    - Starts low, breaks and goes high
  - Mild: Lab A stand 1, Test Key 103770, engine 934497
    - Starts low, stays on the low end
- Oil E – flat to slight climb, 2 groupings (consistent KV40 and oxidation response)
  - Severe: Lab F Stand 1 TK 103588, engine 120830349
  - High Oil Jet P: Lab B Stand 1, found that oil jet P was measured at the wrong location
  - Mild: Non apparent (group of 3)
- Oil F
  - Severe: Lab G stand 2, TK103423 engine1202487.
  - Mild: Lab A Stand 2, TK103425 engine 934497
- Operational Data
  - Oil A
    - Severe: None
    - Mild: Lab D stand 1, Test key 103527, engine 142(engine 2)
    - Notes on operational: Lab A had very high oil gallery and jet pressure. The Lab D run identified had middle of the range operational data.
  - Oil B – flat to slight climb, 2 groupings and one outlier
    - Severe: Lab G Stand 2, TK-104623 engine 89024263
      - Highest fuel flow
    - Mild: Lab A Stand 1 (TK-103550, eng 920867) had lowest fuel flow and lowest coolant inlet temp (T/C replaced after test), Lab D stand 1 (TK-103551, eng 142)
  - Oil C – oil climbs
    - Severe: Lab B Stand 1, TK103676. Engine 1389023341

- Lowest fuel flow
  - Mild: None apparent
- Oil D
  - Severe: Lab F stand 1, Test Key 103773, engine 122410008
    - Second highest oil jet pressure
  - Mild: Lab A stand 1, Test Key 103770, engine 934497
    - Highest oil jet pressures
    - Highest fuel flow rate
  - Notes on operational; 2 highest oil jet pressures were the top and bottom ranges of KV40 response. Same for oil gallery pressure
    - We have a much larger spread on this value than we'd like.
- Oil E – flat to slight climb, 2 groupings (consistent KV40 and oxidation response)
  - Severe: Lab F Stand 1 TK 103588, engine 120830349
    - Median fuel flow rate
  - High Oil Jet P: Lab B Stand 1, found that oil jet P was measured at the wrong location
  - Mild: None apparent (group of 3)
- Oil F
  - Severe: Lab G Stand 2, TK103423 engine 1202487.
    - Highest fuel flow rate
  - Mild: Lab A Stand 2, TK103425 engine 934497
    - Median fuel flow rate
- Oil Gallery to Jet Delta
  - Lab A Oil A
    - Wide spread between the two tests
- Oil Consumption
  - On most oils, the severe and mild oils did not follow a pattern with oil consumption

#### Oil filter modifications

- Riccardo had a filter head modified to eliminate the oil jet pressure control springs
- The drain plug, opening valve spring and plunger, and control valve spring and plunger were removed and the ports welded over
- Allows oil flow to the jets at start up
- No modifications should be made yet, waiting to see the results of XOM Oil E run before implementation

- Next meeting:
  - Feb 4<sup>th</sup> and 5th all day

- Location: Afton (Richmond, VA)
- Bring an oil filter housing assembly fully modified and set up for test conditions
- Bring a mechanic to look over hardware while we discuss operational items