

# Seq. IIIH Severity Task Force

Teleconference

Thursday, February 2, 2017

09:00 – 11:00 EST

## 1.) Attendance

Ed Altman, Bob Campbell, Jeff Betz, Amol Savant, George Szappanos, Addison Schweitzer, Ankit Chaudhry, Pat Lang, Jason Bowden, Matt Bowden

## 2.) OHT Update on Action Item from Feb. 1 conference call.

- a. OHT's vendor can provide 60 each sample/prototype pistons manufactured to the latest drawing revision. The expected delivery date would be February 27, 2017.
  - i. The group asked if these will be batch code 4 pistons or manufactured separately. OHT will confirm.
  - ii. If the pistons are not from the exact same batch as the large batch of pistons being manufactured, the group does not feel there is much use for them.
- b. The purpose of reviewing a small sample of pistons should not be to determine if future changes to the drawing can be made. As was discussed during the Feb. 1 conference call, the manufacturer will not be able to tighten the tolerances any further beyond the modifications that have been recently made. This effort would be used to provide future insight into the larger batch to see if there has been a shift in testing.

## 3.) List of Short Term and Long Term possible solutions –All

- a. Contingency plan for manufacturing different ring gaps
  - i. Determine what the appropriate ring gaps/gap strategy. Pat Lang commented that we need to be careful with regards to modifying ring gap strategies as changing these could have a significant impact on the test. Jason Bowden also commented that the ring package was developed through significant testing during test development. We do not want to redevelop the test. The group agreed that if we do proceed down this course the rings needs to be gapped at a single location.
  - ii. OHT to review logistics of ordering parent rings (less gaps).
  - iii. Possibility of using production rings for short term. Jeff Betz provided the following part numbers:
    1. 05184345AB Top Ring
    2. 05184613AB Middle Ring
    3. 05184246AB Expander
    4. 05184040AB Oil Control Rail
  - iv. OHT to review differences between production and OHT supplied rings.
  - v. Ed Altman to ask Stats Group to review blow-by data and compare lab initial, 6hr-20hr, test average and EOT averages to determine if a target blowby can be created.

- vi. Create design of experiment to see the effects of changing ring gaps on production rings sued with BC3 hardware. There was significant discussion on which gaps we should attempt, so that we can have a significant impact on blowby. The group chose to use Ref. oil 436. Valvoline will use oil 438 as they have been having severe oil consumptions issues compared to other stands/labs. The design of experiment is shown below.

**Seq. IIIH Severity Task Force Initial Ring Gap DOE to determine effects of ring gap on blowby in Seq. IIIH**

LAB	OIL	TARGET RING GAP	NOTE:
AFTON	436	0.015" TOP / 0.020" SECOND	STOCK RING
LUBRIZOL	436	0.015" TOP / 0.020" SECOND	STOCK RING
INTERTEK	436	0.018" TOP / 0.028" SECOND	GAPPED AT INTERTEK
SOUTHWEST	436	0.018" TOP / 0.028" SECOND	GAPPED AT INTERTEK
VALVOLINE	438	0.015" TOP / 0.020" SECOND	STOCK RING

NOTES:

- PREFER EACH TEST RUN ON STAND WITH HISTORICAL REF 436 DATA ON BC 3 PISTON HARDWARE.
- LABS TO PROVIDE CURRENT SA'S FOR STAND USED IN THIS DOE.
- INTERTEK TO GAP THEIR RINGS AND SOUTHWEST RINGS USING IIIH HONED BORE.
- LABS RUNNING STOCK RINGS WILL MEASURE RING GAPS IN A IIIH HONED BORE. LABS WILL WORK AMONGST THEMSELVES TO ENSURE EVERYONE IS RUNNING THE SAME GAPS. THE GAP MAY ULTIMATELY BE DIFFERENT THAN 0.015"/ 0.020".
- OHT WILL DONATE BC3 PISTONS, PINS, CLIPS AND GASKETS.

- b. Review of Blowby Meters, Calibration and cleaning procedures
  - i. Different Blowby Meters in use - Lubrizol currently uses a fixed edge orifice cart and other labs use the JTEC meter. There are different calibration methods being employed by the labs.
  - ii. Calibration - The goal would be to standardize the calibration procedures amongst labs for the JTEC meters.
  - iii. Cleaning of system- A lab is experiencing more oil deposits in the prefilter prior to the JTEC meter. The group will review cleaning procedures and the blowby measurement methods to ensure there are minimal differences amongst the labs.
- c. Review differences in stands to determine if there is a cause for differences in blowby and oil consumption between the labs/stands.
  - i. One lab does not use fans on the exhaust pipes or insulation on the blowby evacuation system.
  - ii. Document and review differences between labs and determine if the procedure needs to be modified.

- d. The task force will inquire with the Stats Group whether a correction factor as a function of oil consumption can be developed.

4.) **Action Items moving forward- All**

- a. OHT to confirm if the 60 each pistons offered by 2/27/17 will be BC4 pistons.-Jason Bowden
- b. Send request for blowby data review to stats group. – Ed Altman
- c. Send request for possible correction factor as a function of oil consumption. –Ed Altman
- d. Send out summary of Ring Gap DOE for task force review and request oils from TMC- Jason Bowden
- e. OHT to review differences between production and special test rings supplied by OHT.

5.) **Next Meeting – February 15, 2017 (9:00- 11:00 EST)**

6.) **Meeting Adjourned at 11:00 am**