September 13, 2017

Small Group COAT Conference Minutes

Conference Attendees:
Jim Gutzwiller (Chairman) Elisa Santos, Bob Salgueiro – Infineum
Jim Carroll (Secretary), Jim McCord - SwRI
Mark Jarrett – Caterpillar
Alex Ebner – Lubrizol
Jim Moritz, Tim Griffin – Intertek
Sean Moyer - TMC
Mark Cooper, Jim Rutherford – Chevron-Oronite
Bob Campbell - Afton
Barb Goodrich – John Deere
Dan Lanctot - TEI

Jim G asked Alex what style of filter bypass valve they have in their system. Alex replied that have the old style without slots.

McCord asked Mark if the pressure changed with the new style. He did not know. It's designed to open if the filter is plugged or during a cold start.
Sean: Is there any way to keep access to the old style?
Jim G: The new style is what you get from the dealer now.
Alex: If you rebuild the engine, is there any reason we can't continue to use the old style?
Mark: There can be wear over time.
Alex: The plastic one I have looked perfect.
Sean asked Mark to see if he can procure the old style. 9M0853 is the older style PN. There are thousands scattered around the globe.
Alex: We could send some to TEI for storage, and specify the part in the procedure.

Alex: We have more separation from the heat exchanger to the engine than the other labs. i.e. longer hoses.
McCord: Does anyone know why we have such a difference in ID in the lines to the cross.
Moritz: No. The Micromotion has ½" cross before it.
McCord to Tim: Do you recall why?
Tim: The only neck down is on the way out.
Moritz: It's because your lab choose the Teflon line.
Tim: I don' know we just tried to keep it as straight as possible.

TRANSDUCER DISCUSSION

McCord asked Alex if they had the lowest pressure drop.
Alex: I think so.
Alex: We have a fitting between the cross and the transducers, in order to be able to calibrate the transducers. Page 34 of the procedure shows this.
Alex to Tim: Aren't your transducers above the cross?
Tim: My line from the cross is up and then down.
Alex: How was it run for the matrix?
Moritz: Same as now. Changes were made early on.
Tim: If the box sizes change then I will move it.
Moritz: It's not best practice as set now.
Lab B uses a barometric reading and PSIG transducers to measure PMICIn and PMICOut.
McCord: We are looking at a different transducer with lower uncertainty.
Moritz: We don't have to specify the transducer but we may need to make specs to comply to.
Tim: On mine I use a delta transducer plus an inlet absolute tranducer. This is what I recommend.
Sean: Everyone should be calculating the pressure the same way.
Tim: Historically when you run flow measurement you read inlet P, and Delta P.
Sean: We should standardize.
Alex: I agree.
Carroll: We have three different methods and we should all do it the same.
Jim G: Asked Tim to send a photo of the transducer setup showing their installation configuration.
Sean: Or, at least a quick schematic.
Tim: OK.
McCord: No difference between grounded and grounded thermocouples.
Tim: You'll have more noise.
McCord: Not if your isolated. The advantage of un-grounded is the response is quicker..

PUMP DISCUSSION

Tim: We all went to the same shoe (gear pump). Just the numbering has changed a bit. If you buy separate parts, then numbers change.
Jim G: Labs should re-check the PNs for the pump. Maybe we should have Cole-Palmer number and Manufacturer's number.
McCord: Re: Line 115 Is that the minimum you measured?
Tim: It's Swagelok's spec.
Lab A is too verify line 115 ID
Tim: There is some assembly if you buy parts individually
McCord: We may need to set specs instead of part numbers.
Tim: That's where the 1.16 ml/rev is important.

GENERAL DISCUSSION

McCord: One item that is hanging out there is the box dimensions. We can't design a box until we decide how to normalize the density. Are we going to recommend one method or another?.
Jim G: We need to recommend an option but also show the options from Emerson.
Moritz: Are we going to change the boxes?
McCord: Do they need to be the same size?
Mortiz The functionality should be the same.
Alex: We should show the options we evaluated and this is what we decided on.
McCord: Agreed, Emerson gave us four options and they said all would work. We have to decide on calibrating. If we need to handle 90C then the boxes may need to be changed.
Moritz: Lets focus on the internals and then decide on the box.

Jim G: Put the 4 Emerson options on the Web, Option 1: With the clamshell system, and don't know how well temperature would be controlled. I think we decided to use Option 3. We use the TMICin and TMICout average temperature to calculate density with Option 3.
McCord: That is the leading option.
Alex: Also, we should have an option if this doesn't work.
Moritz: What do you mean?
Alex: If after doing this the labs are still scattered. New engine, OC, could be causing differences. Other equipment could be sent to each lab to read aeration simultaneously.
Moritz: We need to define acceptable reproducibility. Are we asking for tighter results?.
Alex: That could define the level of success.
Moritz: Lab G never changed and is still on target.
Rutherford: Getting all together on setup and calculation and then see where we are.
Moritz: If we can't correct after the changes we may need another mini-matrix.
Jim G: I think we will have to run both a high and low aeration oil.
Alex: At a minimum, yes.
Jim G to Tim You were recording the density thru the Modbus.
Tim: Yes with a few drop outs of data.
Jim G: Can the other labs see if they can get the frequency out.
Alex: Yes
McCord: We will check with Emerson on how to do it.
Jim G: Hopefully we would know.by the meeting. We will keep the box at 50C then. Sean, you did use the back out method?
Sean: Yes.
Jim G: We may need some of that data to show at the meeting.