

September 14, 2017

Caterpillar Surveillance Panel Conference Minutes

Conference Attendees:

Jim Gutzwiller (Chairman) Elisa Santos, Bob Salgueiro, Gang Hu – Infineum
Andrew Stevens – Lubrizol
Jim Carroll (Secretary), Jim McCord, Travis Kostan - SwRI
Jim Moritz, Joshua Ward – Intertek
Sean Moyer - TMC
Mark Cooper, Jim Rutherford – Chevron-Oronite
Todd Dvorak, Bob Campbell, Christian Porter, Abaigeal Ritzenthaler - Afton
Matthew Bowden – OHTech
Raymond Burns - Exxon
Dan Lanctot - TEI

1K/1N Parts

Jim Gutzwiller showed on screen the new parts ID requirements were shown along with changes to the data dictionary.

Motion was made to standardize recording of part identification codes in the 1K/1N sections 9.3.3 and 9.3.4, and accepting associated changes in the data dictionary and test report forms.

Seconded by Jim McCord

No opposed

No waives.

Motion carried.

Data dictionary, report forms, and edits for the procedure are attached.

Andrew to Sean: How long will the Beta period be for the changes to be implemented?

Sean: I will make changes, and the Beta period will start on Monday.

Test Procedure

McCord: Pre-test measurements of RA on the liner is both required and not-required in the procedure.

9.3.4 says no surface finish measurement

9.3.4.1 says to measure

I would like to note that it is useless, and I see no need to measure RA,

Andrew: We may need to measure RO.

McCord: It is useful within the lab.

Mark: Across labs there are issues of having the same method.

McCord: We could talk about this in the OH conference.

Jim G: We will move this to an OH topic.

New C13 liners

Jim G: The C13 liners are available at the dealers. There are 4 labs referenced. How are we going to reference the new liners? Mark has notes on the new cleaning process.

There was discussion on when and how to run the new references.

Jim G: Have any labs received new liners and tried cleaning?

McCord: I purchased a few.

Jim G: Maybe we should push back the referencing until all have tried to clean liners.

New liner cleaning

Mark: LAC 147 cleaning solution shown on screen. Use it undiluted. CAT has tried it and it works as well as the older product. New liners have an amber color from the rust preventer (RP) coating. Not noticeable until the liners are heated.

McCord: What temperature did you take the coupons to?

Mark: 150C for 20 hours.

Jim G: There is no pass/fail criteria for the liners.

Jim G: If we heated a current liner would we have an amber color, or discoloration?

McCord: There is no current discoloration in current liners at EOT.

Moritz: Is it a different rust preventer (RP)?

Mark: Yes

Mark: We all agree that EOT coloration is not a problem. So this is just not to have an effect on piston deposits. We should use a sonic bath. Everything is just being installed as is at the factory and during replacements in the field.

Andrew: I think we should all go through the cleaning process to make sure we get it right.

Jim G: Is it possible to check if anything is left after cleaning?

Mark: We found out about it because we ran engines with both models of liners and noticed the color differences. They don't discolor if you remove the RP.

?: We could go through the process and then bake the liners. And share with the group our results.

Mark: Do the labs have access to an auto cleaning system?

Moritz: no

McCord: no

Jim G: Note that you need to change gloves when handling the liners.

McCord: The way it is written we will probably have different levels at different labs.

Mark: These photos don't do it justice. By eye the cleaned with 147 (Chemtool LAC-147-TDS brochure is attached) cleaner is much more silvery.

McCord: Was the ring area cleaned off?

Mark: I will go back and look.

Andrew: If we just run with RP on it and have a shift we can handle it as if it was a parts batch change.

Moritz: Any chance the honing grit gets covered by the RP?

Jim G: I wonder if carbon deposits on the top of the ring would be affected.

Mark: It should disappear in the first few seconds of engine operation. We ran 3D surface topography before and after cleaning and found no difference. We can leave it as is, because that's how production is done and appears to have no effect on deposits.

Andrew: Did you run a C13 test?

Mark: Yes (ET41 in house name for C13) and found no problem with deposits.

Jim G: You could send the pistons to one of the labs to compare ratings.

Mark: Now it's a Tier 4 engine setup not a 2004 engine set up.

Jim G: We could have the labs try different cleaners, we should get a group together to discuss this and have a call next month.

Bob: Can the supplier of the RP tell us what to use?

Andrew will explore other cleaning methods.

Reference period extension for new liner tests

Bob: Can we get a motion today to allow extensions and run references in January.

Jim G to Sean: Do you have preferred wording?

Sean: Just say that the panel directs TMC to allow extensions.

Jim G: Target January as the time to run the references

Sean: If you are out now, then your period is not extended. If you take the extension, then you must run a reference in January. Each lab must ask for an extension until the new coordinated batch of liners are referenced, which is anticipated in January 2018.

Motion was made to direct TMC to allow extensions of the referencing period to labs currently in reference, but they must reference in January at the latest.

None opposed

TMC waived

Motion carried.

Jim McCord presented a graph of Oil Consumption with uneven OC.

McCord: Should we allow engineering judgement to get a more representative OC rate by splitting parts of a period into two parts? If not, the way the procedure is written we would get a non-representative OC rate and possible failed test.

Andrew: What do you think caused it?

McCord: A bubble formed in the oil pan that burst, the amount of oil that it chages is similar the volume in the intake valve actuators, but this should be momentary. A bubble bursting fits these data. There are other things that can cause a quick change in weight. Bumping the weigh bucket could do it.

Andrew: I am worried about this

Moritz: I am too it could rise also.

Moritz: HD may need to look at this, T12's have an OC

McCord: If you do split it, then you have to report it and explain it.

Mark: You could pick any slope

McCord But it happens and we should do something about.

Sean: I think you have to have a well-documented and thought out procedure to have it well controlled.

Jim G: It would take quite a while

McCord You can only do it if you have a shutdown now, or a sample taken.

Moritz: The T12 sample shifts are so small that we don't do it.

McCord: If this happens at the end of test it could be a problem

C13 Oil Filter bypass valve

Jim G: There are two valves available. New slotted valve (392-9208) or old (9M0853) original type. By procedure we should use the 9M0853, they both use the same spring.

A file is attached with these valves.