

# Daimler Surveillance Panel Meeting Minutes

April 4, 2019

1:30 PM – 3:30 PM CST

## **Call Participants:**

Lubrizol - Patrick Joyce (Chairman)

Southwest Research Institute – Jose Starling (Secretary), Jim McCord, Robert Warden

Intertek – Jim Moritz, Josh Ward

Daimler - Suzanne Neal

Infineum - Jim Gutzwiller, Elisa Santos, David Brass, Bob Salguiero, Jun Cui

Chevron Oronite – Mark Cooper

TEI – Derek Grosch

TMC – Sean Moyer

Haltermann Solutions – Prasad Tumati

## **Agenda Items**

### **Parts Supply Update (Rocker Arms and Second Rings)**

TEI states rocker arms have not been sourced yet and is working with Daimler to acquire these. The rocker arm had a part update where it went from one part number to two separate part numbers causing a supply issue. Daimler is trying to get actual dates from their supplier to see when they will be available. A preliminary small order of these was requested to allow a small quantity of rebuild kits to be sent out to the labs but no status update on when that small order or further orders will be available (to be discussed in next call).

Daimler stated that the rocker arms could be re-used as a possible temporary path forward, if the panel approved, provided they met certain wear criteria. The acceptable wear rates for re-using rocker arms according to Daimler was provided to the group. Questions were raised on how these should be cleaned and if there was any risk of leaving debris behind in the used rocker arms which would then translate to the next test. Suzanne (Daimler) was to follow up internally if there is any specific cleaning procedure that should be used to clean these if approved for re-use. It was suggested that the labs perform internal measurements on these components if possible to see if they see any issues with re-using these.

TEI is in the process of ordering another batch of second rings. Batch A pistons came with second and oil control rings, however there was a lot of rejected second rings. Rejects on second rings were mainly due to staining or rust on the sides or nicks where the face meets the side of the ring. TEI is ordering enough second rings to get the test thru the same batch of pistons and oil rings (currently about 890 oil rings left and 260 second rings left). TEI ordered about 800 new second oil rings to account for some rejects. About 1200 top rings (Batch B) remaining and 800 pistons (Batch A) remaining at the time of this call.

### **Critical Parts Supply (New Batch of Liners)**

TEI has about 200 usable Batch C liners (Mahle) remaining in inventory due to a high reject rate. This would be about 33 test kits or 4 to 6 months' worth of supply. Mahle cannot supply liners for the test at the moment, so Daimler has been exploring a third supplier option. However, Daimler was recently notified that their supply line on Mahle would be easing up over the next few months which would allow for production of these liners after all. Daimler will relay additional information to the panel as they have it. It was mentioned that desired batch size this time should be 4000 liners as opposed to 2000.

A few labs have stand calibrations expiring over the next few months and it was brought up weather adjustment of reference period should be considered since we are expecting a new batch of liners soon. This would allow the labs to reference on the new set of hardware to generate a data point to be used for comparison and also not waste a usable test kit on a reference. This will be discussed further in the next meeting.

### **Alternate Supplier Procedure Wording and other Procedural Updates**

The final wording for alternate supplier protocol was shared with the panel and it is attached these meeting minutes as well. The wording shown was presented to the panel and is already in the process of being added to the procedure. No action needed by the panel on this.

On the topic of alternative suppliers, Haltermann Solutions expressed their interest in being an alternate supplier for PC-10 fuel. Prasad Tumati of Haltermann Solutions asked the panel what would needed to be done in order to have an alternative fuel supplier approved for this test. Haltermann mentioned that they are expressing the desire to be an alternative fuel supplier to each test panel to understand what the process required for each group/test is needed.

It was mentioned that the likely the path forward would be to at the minimum run a reference test on the new fuel. Haltermann Solutions expressed the desire to receive feedback from Daimler and other panel members to see what the process should be for the DD13 test. Suzanne was to discuss internally what Daimler felt would be appropriate. Each member was to go back and bring forth or discuss what their requirements or needs would be in order to consider an alternative fuel supplier for this test.

### **Fuel Requirement Information**

Discussion took place on the need to remove D1319 in the DD13 test method fuel specification for PC-10 and replace it with D5186. Chevron-Phillips Chemical has pretty much exhausted the supply of material needed to run the D1319 test method. This is an industry wide issue were the manufacturer of a dye needed to run the D1319 test is no longer in business and an alternative is not available. The TGC fuels task force has approved the use of D5186 for aromatics, which is a newer method, in place of the D5186, but the ultimate responsibility for the fuel specification rests with the surveillance panels. It was explained that the Fuels Task Force had already made the recommendation to move to D5186 and remove D1319 but they needed the individual SP to approve D5186 for aromatics in order to allow fuel to be released to the labs (batches of fuel cannot be released unless all COA tests are performed per Chevron-Phillips Chemical internal policy).

Jim Moritz made the motion that the Daimler Panel approve the TGC Fuels Task force recommendation to move to D5186 for the measurement of aromatics in PC-10 fuel and not D1319. Jose Starling seconded the motion however official voting to pass this motion did not take place as discussion took place if a motion was actually necessary for this panel. The Daimler PC-10 fuel specification in the DD13 Scuffing test procedure listed D1319 as a report only item and already called out D5186 as the necessary procedure with limits. However, it was later brought up that the PC-10 fuel specification on the TMC site did not match Table A5.1 in the DD13 Scuffing test procedure for PC-10. The limits on several of the parameters are not accurate in the table in the procedure and would ultimately need to be adjusted or simply have the procedure reference the TMC PC-10 specification.

It was also noticed that method D5186 reports in percent mass and D1319 reports in percent volume so the appropriate limit would need to be selected and or clarified to insure equivalency. This concern will

be returned back to the fuels task force for further clarification on the reporting units and limits by the panel Chair and is to be discussed in the next meeting.

### Rater Data

A presentation with three sets of parts taken from 2017 rater workshop which included DD13 parts was shown by Patrick. It was stated that currently anyone can rate the DD13 liners and there is no official approved rater for this test method. The data presented shows the data collected during the rating workshop for each of the measured components and is attached to these minutes.

It was shown that in rating cylinder liners that are around the 10 to 40 percent range seemed to have a higher variability in percent scuffing. It was expressed that the rating workshop should incorporate more training in order to insure that new raters and experienced raters get practice to align on what is considered scuffing based on the DD13 procedure. It was also brought up that Oil Control Ring rating were all over the place and it was discussed if this is even a meaningful criteria. The face of the oil control ring that we are asking to be rated is very small and very difficult to rate accurately as the data shows. It was discussed if the requirement to have the oil control rings rated for scuffing should be removed. It was mentioned that other items in the procedure may need further clean-up and could be done better at a future face to face meeting.

### Critical Parts Lists for Test Procedure

The DD13 Scuffing test procedure currently calls out the tailpipe temperature location in section 8.6.2.12 which is a report only parameter and the controlled item which is exhaust pressure in tailpipe did not have a location specified. It was proposed that exhaust pressure tailpipe section 8.6.3.4 have a location specified as 270 +/- 50 mm as shown in the attached document and remove the temperature location specification since it is a non-critical parameter. This change will not impact where any of the labs had their current exhaust pressure tap located.

Patrick Joyce made the motion to approve the proposed wording as shown in the attached document "Proposed D8074 Clarification for Exhaust Measurement Locations" and as shown below. Josh Ward seconded the motion. Voting took place in the panel with no negative or waives and thus the motion was passed. This change will be incorporated on the next revision of the procedure but is effective immediately.

#### Current

8.6.2.12 *Exhaust Temperature in Tailpipe*—Locate the thermocouple in the exhaust pipe approximately 270 mm downstream of the turbocharger outlet. Locate the thermocouple downstream of the exhaust pressure tap, and upstream of the CO<sub>2</sub> probe. Refer to Fig. A4.15.

8.6.3.4 *Exhaust Pressure in Tailpipe (Exhaust Back Pressure)*—Measure in a straight section of pipe upstream of the exhaust tailpipe thermocouple, with a pressure tap hole as shown in Fig. A4.15. Do not locate the tap downstream of either the temperature thermocouple or the CO<sub>2</sub> probe.

#### Proposed

8.6.2.12 *Exhaust Temperature in Tailpipe* – Locate the thermocouple in the exhaust pipe downstream of the Exhaust Pressure in Tailpipe measurement location and upstream of the CO<sub>2</sub> probe. Refer to Fig A4.15.

8.6.3.4 *Exhaust Pressure in Tailpipe (Exhaust Back Pressure)* – Locate the pressure tap in a straight section of the exhaust pipe 270 +/- 50 mm downstream of the turbocharger outlet. Locate the pressure tap upstream of the Exhaust Temperature in Tailpipe thermocouple and CO<sub>2</sub> probe as shown in Figure A.15.

### Next Meeting:

Next meeting date set for April 18, 2019 from 1:00 to 3:00 CST.

## **Attachment #7**

**Final Wording for Alternate Supplier Protocol**

***Draft of the wording that was generated during the August 30, 2017 Technical Guidance Committee Meeting Conference Call:***

**Alternate Supplier Protocol**

ASTM International policy is to encourage the development of test procedures based on generic equipment. It is recognized that there are occasions where critical/sole-source equipment has been approved by the technical committee (surveillance panel/task force) and is required by the test procedure. The technical committee that oversees the test procedure is encouraged to clearly identify if the part is considered critical in the test procedure. If a part is deemed to be critical, ASTM encourages alternate suppliers to be given the opportunity for consideration of supplying the critical part/component providing they meet the approval process set forth by the technical committee.

An alternate supplier can start the process by initiating contact with the technical committee (current chairs shown on ASTM TMC website). The supplier should advise on the details of the part that is intended to be supplied. The technical committee will review the request and determine feasibility of an alternate supplier for the requested replacement critical part. In the event that a replacement critical part has been identified and proven equivalent the sole-source supplier footnote shall be removed from the test procedure.



# TGC Fuels Task Force

Update to TGC 12/10/2018



# Task Force Actions during 3/4Q 2018

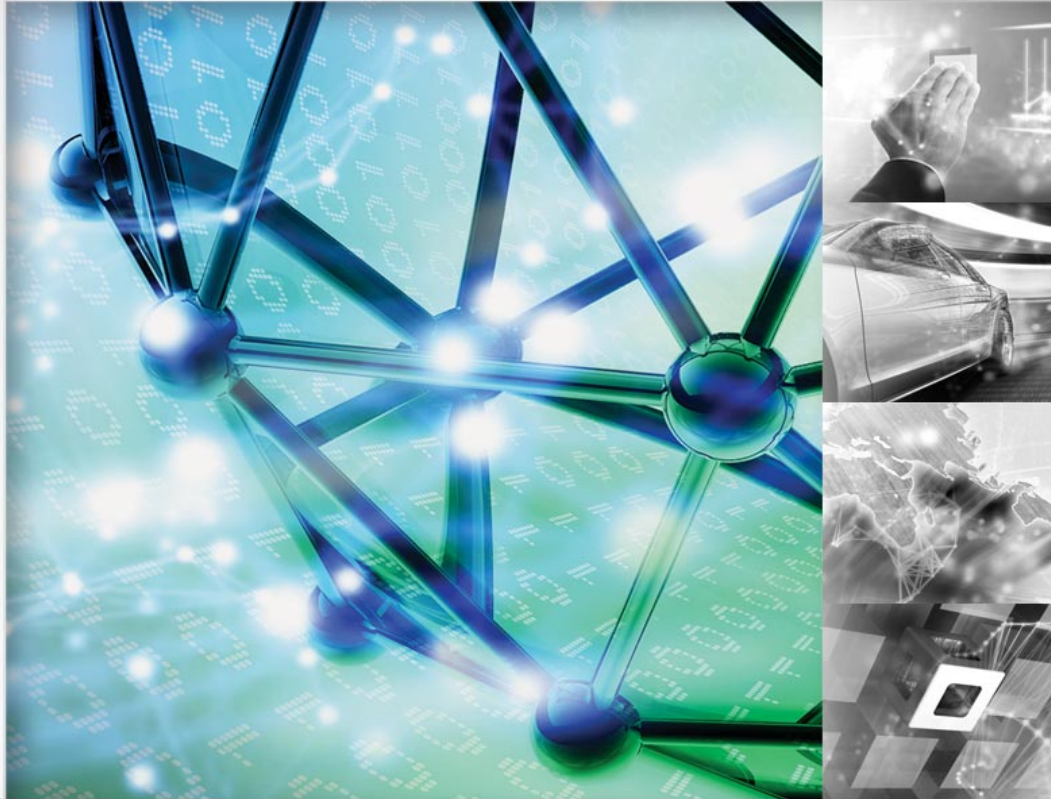
- ▶ Work complete on PC-10 (ULSD) and PC-9HS fuel specs
  - ▶ [Http://www.astmtmc.cmu.edu/ftp/docs/fuel/tmc-monitored%20test%20fuel%20specifications.pdf](http://www.astmtmc.cmu.edu/ftp/docs/fuel/tmc-monitored%20test%20fuel%20specifications.pdf)
- ▶ Task Force near complete on Haltermann EEE and Green Fuel specs
- ▶ Task Force has started to discuss Batch Definition and Monitoring Plans



# Other Test Fuel Activities

- ▶ Non-Related to TGC Fuels Task Force
  - ▶ Seq. VIE Test Fuel contract is in process
- ▶ Initial discussions around contract with CPCChem on PC-10/PC-9HS fuel has begun.
- ▶ New Task Force Chairman





# 2017 Daimler SP Rater Workshop DD13 Parts Review

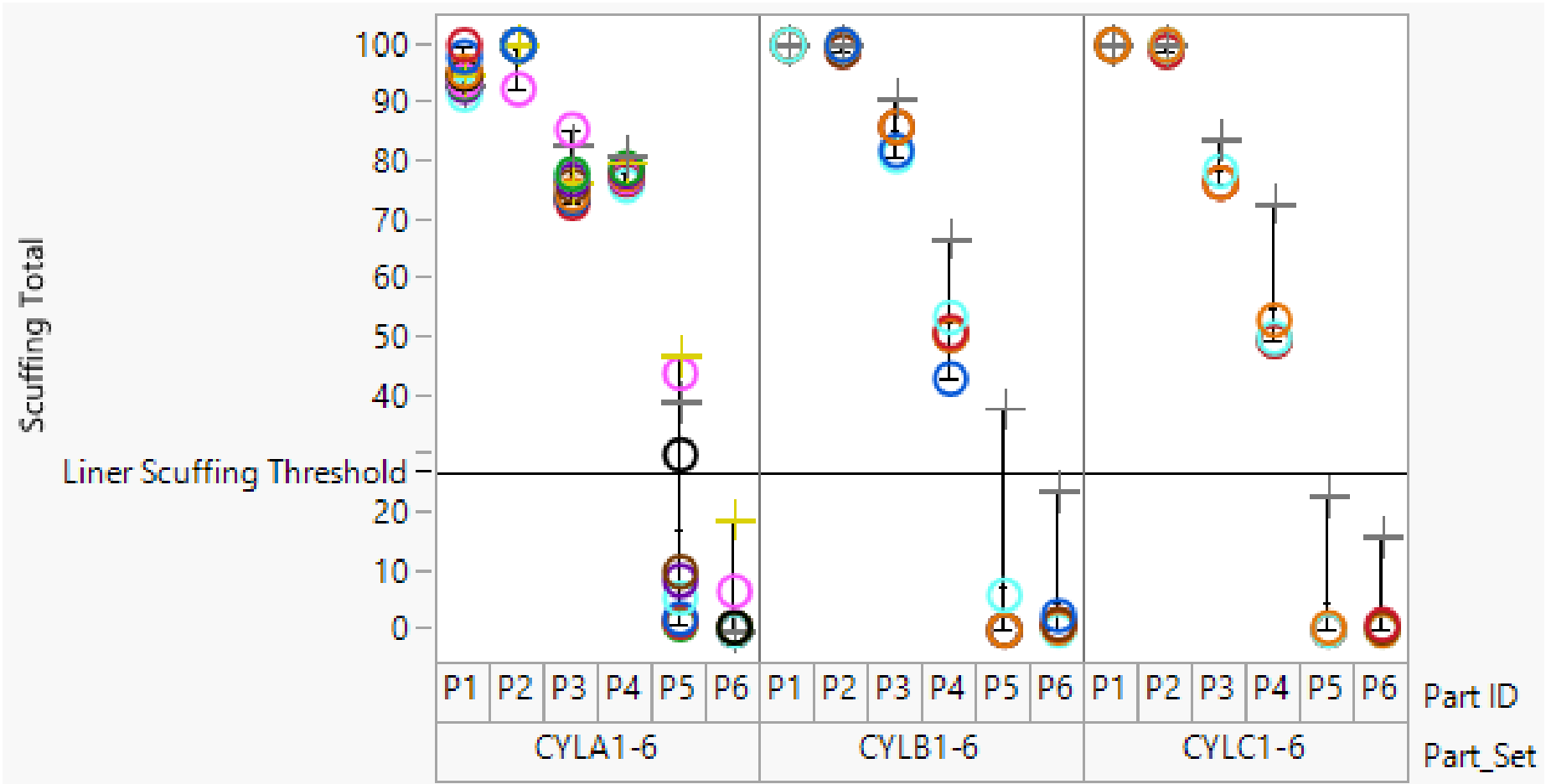
The Lubrizol Corporation  
January 2019

# Summary



- 3 Sets of DD13 parts were rated at the 2017 HD workshop
  - Raw data can be found here:  
<http://www.astmtmc.cmu.edu/ftp/refdata/diesel/dd13/data/rating%20data/>
  - Parts included: Liner, Top Ring, Second Ring, Oil Ring
- Currently D8074 procedure as no requirements on who can rate test parts at EOT
- Objective of this study was to gather data for the Surveillance Panel on parts rating variability of the rating community for reported measurements in D8074

# Cylinder Liners



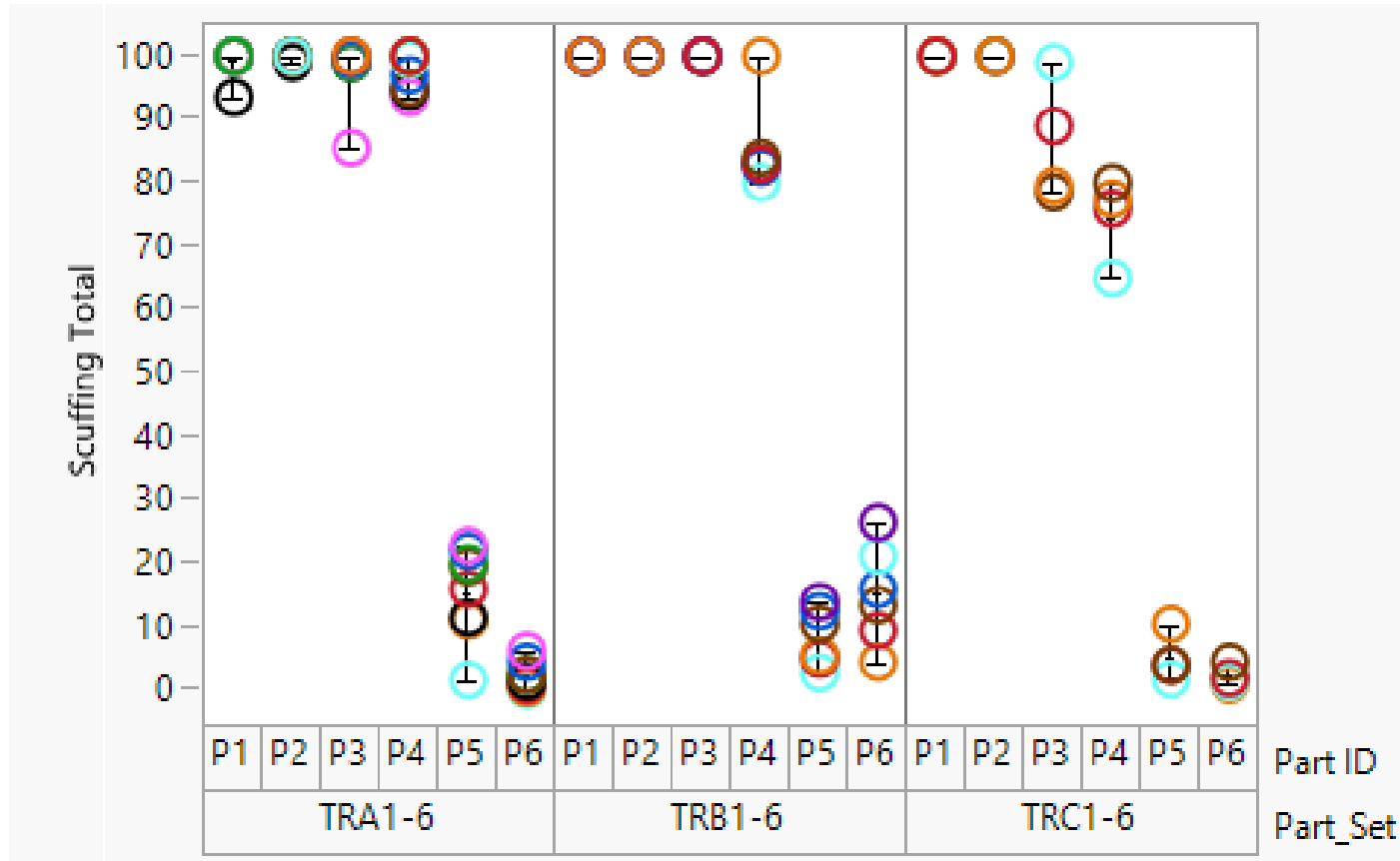
Colors represent different raters

“O” Indicates a High Volume Rater

“+” Indicates Not a High Volume Rater



# Top Rings



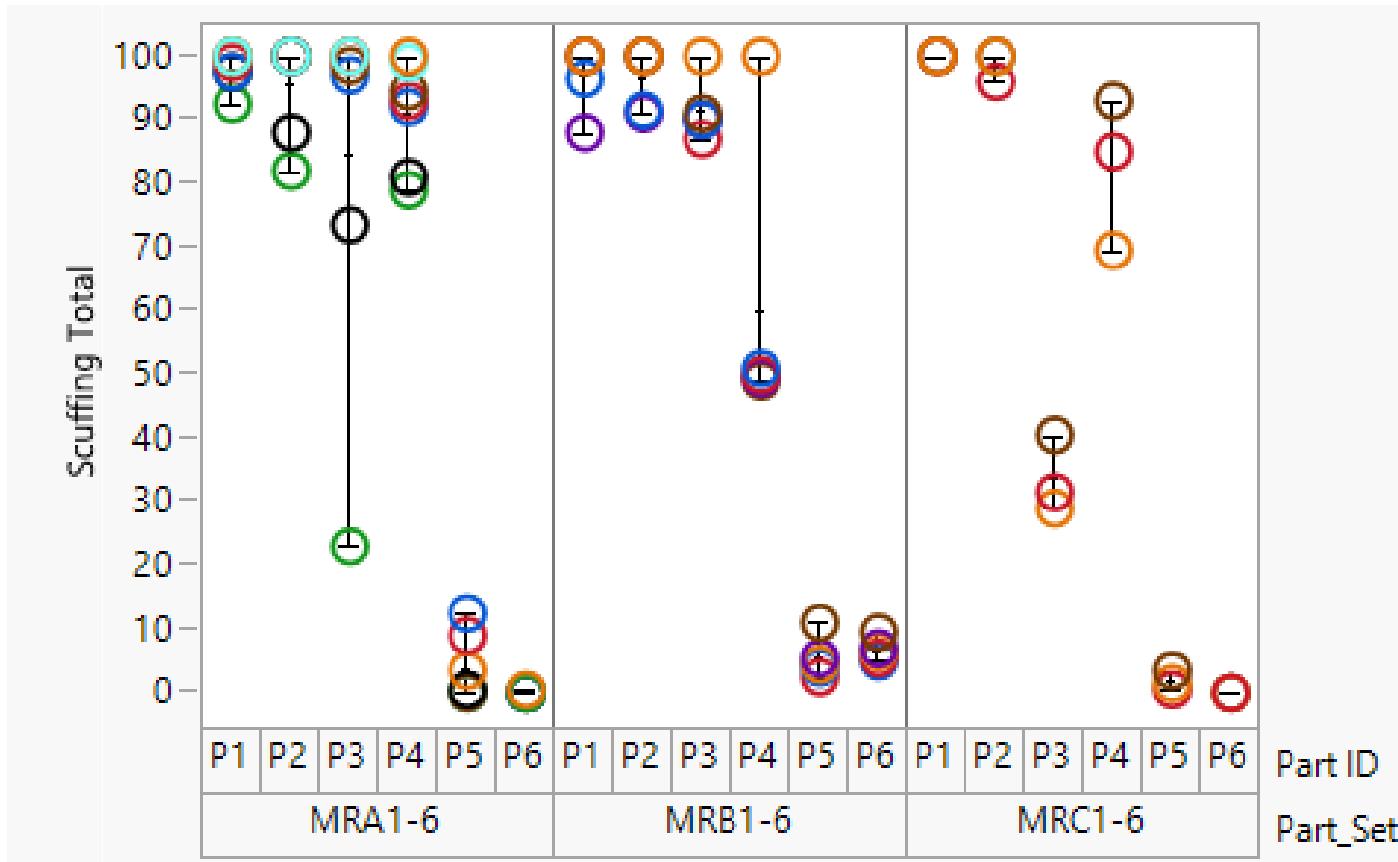
Colors represent different raters

“O” Indicates a High Volume Rater

“+” Indicates Not a High Volume Rater



# 2<sup>nd</sup> Rings



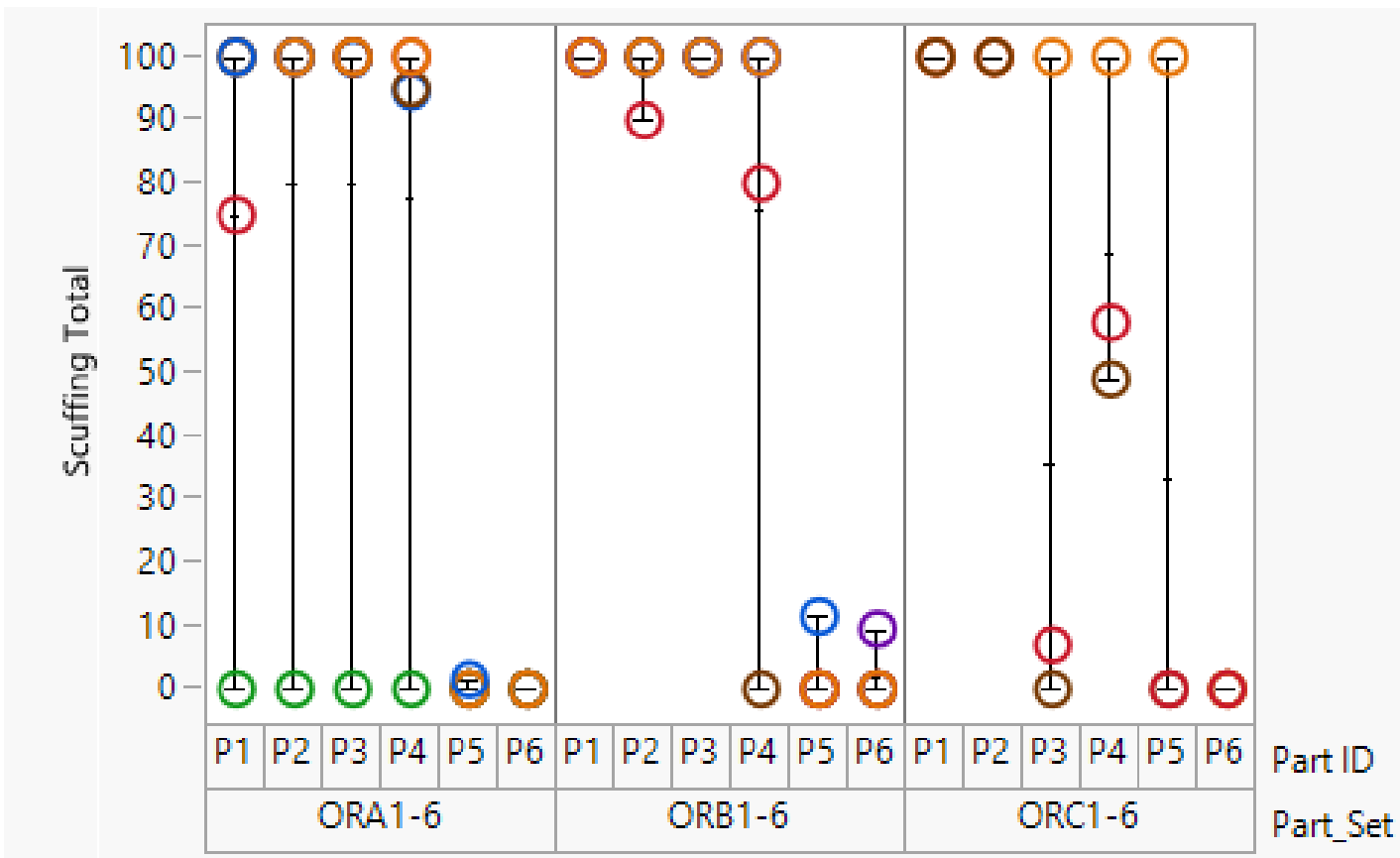
Colors represent different raters

“O” Indicates a High Volume Rater

“+” Indicates Not a High Volume Rater



# Oil Rings



Colors represent different raters

“O” Indicates a High Volume Rater

“+” Indicates Not a High Volume Rater





## Working together, achieving great things

When your company and ours combine energies, great things can happen. You bring ideas, challenges and opportunities. We'll bring powerful additive and market expertise, unmatched testing capabilities, integrated global supply and an independent approach to help you differentiate and succeed.





## Proposed D8074 Clarification for Exhaust Measurement Locations

Patrick Joyce

4 April 2019



# Proposal to Change wording to Exhaust Pressure in Tailpipe wording in D8074

## Current

8.6.2.12 *Exhaust Temperature in Tailpipe*—Locate the thermocouple in the exhaust pipe approximately 270 mm downstream of the turbocharger outlet. Locate the thermocouple downstream of the exhaust pressure tap, and upstream of the CO<sub>2</sub> probe. Refer to Fig. A4.15.

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## Proposed

8.6.2.12 *Exhaust Temperature in Tailpipe* – Locate the thermocouple in the exhaust pipe downstream of the Exhaust Pressure in Tailpipe measurement location and upstream of the CO<sub>2</sub> probe. Refer to Fig A4.15.

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the lubrication challenges of today's advanced hardware



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