

Sequence VJ Working Group + Sequence VH O&H Meeting
March 17th, 2025 at 2:30 PM EST via MS Teams

Attendees: Al Lopez, Colten Oquin, Dylan Beck, Christian Exposito, Bill Du Chene, Amol Savant, Mike Deegan, Rob Zdrodowski, Joe Anthony, George Szappanos, Ben Maddock, Travis Kostan, Mike Lochte

Overview:

1. VJ Working Group
 2. Hardware
 3. Operation
 4. Fuel
 5. Other
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1. VJ Working Group

- a. Mike Deegan requested information ahead of April 7th AOAP.
Open items needed to support a precision matrix
 - i. What new engine tests have run? [See Section 1.b](#)
 - ii. Are there new reference oil sponsors? **No**
 - iii. What fuel? **To be determined**
 - iv. Etc

- b. Lab Updates
 - i. Intertek
 1. 931 with Haltermann Carless fuel experiencing significant derate issues
 2. If derate is resolved, expected EOT = 3/27/26
 - ii. Lubrizol
 1. 940-1 with N-batch fuel and V2 Wiseco pistons
 - a. V2 pistons feature slightly larger ring grooves to prevent sticking
 2. Build in progress
 - iii. Afton
 1. 1011-1 with M-batch fuel and Wiseco pistons
 2. Hone delayed due to stone issue
 3. Start is pending Ford support for modified hardware
 - iv. SwRI / Infineum
 1. Presented on status of the lab and summarized mapping exercise
 2. Preparing for a start with 940-1, N-batch fuel, modified test conditions, and stock pistons

- c. Ford input
 - i. There's pressure to get this test in a position to conduct a precision matrix by the end of the year at the latest due to funding approvals

2. Hardware

- a. Inventory Life (as of December 2025)
 - i. Lab A = ~2028
 - ii. Lab B = ~2030
 - iii. Lab D = ~2030
 - iv. Lab G = ~2028

VH Historic		
2015 - 2025	Tests Ran	AVG/yr
Candidate Tests	1227	122.7
Reference Tests	350	35
Non Registered	50	5
	1627	162.7
# of blocks	406.75	40.675

- b.
 - i. Do we expect run rates to increase in the next four years?
 - ii. What date should labs target?
- c. Bishop Order 2026
 - i. Labs agreed this is important but no immediate action required. Dexos implications will drastically change forecasts. O&H will monitor and act prior to June 2026 ASTM
- d. FCS Order 2026
 - i. Ford will work with FCS contact to straighten out part numbers and minimum orders
 - ii. Execution of this order is closely tied to GM dexos demand
- e. Ford agreed to speak with GM about expected VH demand
 - i. Read across?
 - ii. Limits?

3. Operation

- a. TMC to investigate if industry charts are capped or not to avoid influence from large standard deviation results
- b. ON HOLD until April 2026 - Tightened piston to bore clearance
 - Current: 0.020 to 0.046 mm
 - Proposed 0.030 to 0.038mm, average of all eight cylinders

4. Fuel

a. M-000054-3 additional runs

Lab A: One more reference expected in March

200603: AES 1.75 σ mild

200607: AES 1.6 σ mild

Lab B: No additional results expected

198394: AES 1.09 σ mild, APV -4.1 severe

198391: AES -0.7 severe, APV -1.98 severe

203078: AES 0.52 mild, APV -2.67 severe

Lab D: No additional results expected

193863: AES 0.053 mild

Lab G: Three more references expected in March (one with Bishop block)

201949: AES 0.7193 σ mild

199199: AES 1 σ mild

b. 13 tests were used to approve M-000054-3

i. Eight additional data points now available (n=21)

ii. Four more expected in March

iii. Labs agreed April is now the correct time to request a Stats Analysis

c. Fuel Properties

i. Fuel Supplier survey results

1. <https://www.astmtmc.org/ftp/docs/gas/sequencev/minutes/V%20O%20and%20H%20S%20ubpanel/VHOandHMinutes20260217.pdf>

2. Labs need more time to review and devise an action plan

Historical Logbook

Date	Topic	Description	Comments
2/12/24	-	O&H formed.	
2/29/24	Hardware	Cam cap anaerobic sealant	IL24-1
3/5/24	Hardware	Cam bearings resolved with King Bearing supply to TEI.	Incl. SwRI bearing analysis
3/12/24	Fuel	N-000010-1+ CofA data integrity review.	Included lab samples to Saybolt
3/26/24	Fuel	Quarterly samples now from test cell	
4/9/24	Hardware	Piston oil hole size differences by piston size not statistically significant to APV	
4/16/24	Operation	Build Workshop conducted	IL24-3 and IL24-4
5/21/24	Fuel	AO content depletion in transit	
5/21/24	Operation	Honing data analysis uninterpretable due to measurement differences	This will be revisited after 2025 fuel approval matrix
6/4/24	Hardware	OHT3G-096-1 brushes explained	IIIG efforts
7/9/24	Operation	OSCR raters group imprecision reviewed	
8/27/24	Hardware	FCS order placed on pistons and rings	
8/27/24	Operation	N-10-1 approval vs PM statistical analysis	
1/7/25	Fuel	RVP adjustments vs fuel dilution	
4/29/25	Operation	Blowby Cart Questions - 5/16" orifice	Equation difference, ~0.1 L/min
8/19/25	Hardware	2024 FCS order has completed	
9/16/25	Operation	Engine Swap experiment Lab A & G	Fuel dilution moves with build
10/28/25	Fuel	M-000054-3 fuel batch approved.	
12/17/25	Operation	Updated report form to capture piston dia.	Version: 20251222
2/17/26	Operation	Severity alarms discussed ahead of Stats review	Some indication of RAC ICF. Other parameters are lab issues
2/17/26	Fuel	Fuel supplier feedback on ethanol, distillation and oxidation stability	O&H needs to summarize and create action plan