

Sequence VH O&H Meeting
January 7th, 2025 at 3PM EST via MS Teams

Attendees: Al Lopez, Ben Maddock, Dan Engstrom, Joe Anthony, Mike Deegan, Tony Catanese

Overview:

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

Notes:

1. Hardware

- Pencool 2000 shortage
 - o PenRay discontinued their entire PenCool line (2000, 3000, 4000 and the associated filters). They do not offer an alternative.
 - o Consider NalCool NalFleet 2000
 - <https://www.starsource-usa.com/collections/nalcool-nalfleet/products/nalcool-nalfleet-2000-engine-coolant-treatment-210-liters-55-gallon-drum>
 - o Consider DELO Extended Life coolant

Mack T-11/T-12 Coolant

• Lab A was informed by Penray/PLZ Corp that they discontinued their Pencool coolant additive production at some point over the last couple of years. Their website no longer references any coolant products and any remaining backstock at distributors has been exhausted.

Per the procedure for both the Mack T-11 and Mack T-12 this specific Engine Coolant is called out:

Mack T-11

7.3 Engine Coolant—Use demineralized water with less than 0.03 g/L of salts or distilled water (do not use antifreeze solutions). Use Pencool 3000 coolant additive at the manufacturer's recommended rate. Pencool 3000 may be obtained from the supplier shown in A2.7, Annex A2.

A2.7 Pencool 3000 is available from:
The Penray Companies, Inc.
100 Crescent Center Pkwy. , Suite 104
Tucker, GA 30084

Mack T-12

7.3.1 For the engine coolant, use demineralized water with salt content less than 0.03 g/L or distilled water (do not use antifreeze solutions). Use Pencool 3000 coolant additive at the manufacturer's recommended rate. Pencool 3000 may be obtained from the supplier shown in A2.7.

A2.7 Pencool 3000 is available from The Penray Companies, Inc., 100 Crescent Center Pkwy., Suite 104, Tucker, GA 30084.

• Lab A has a T-11 reference test planned, in which we they will use the DELO extended life coolant which is used in the T-13 test. We will need to update the procedure to allow the usage of other coolants.

- o Labs to check inventory and possibly redistribute until fuel approval matrix is complete

2. Operation

- Report Form changes
 - o If forms are unavailable by the time of fuel approval matrix, labs should retain the data separately for further analysis
 - o Tentatively planning for new reports with build values effective 1/15/2025

- SJ-410 filtering (nearly identical to GMOD). All labs agreed with most already running with this configuration. This will be motioned for acceptance at the next SP meeting.

	VH
Unit of Measure	μin
Standard	ISO1997
Profile	R
Filter	Gaussian
λc	0.03 in
λs	100 μin
M-speed	0.02 in/s
N	5
Pre/Post	ON
Del. Wave	OFF
Prof. Comp.	OFF
Mean Line	OFF

3. Fuel

- Lubrizol fuel dilution experiment with Haltermann
 - o Run 48 hours on each batch of fuel with RO 1011-1 and evaluate changes in fuel dilution
 - o Three batches of SVG2 N-000010-1+
 - -4 from April 2023
 - -14 from May 2024
 - -19-1 from Dec 2024
 - o -19-1 modified by Haltermann to push RVP to the top of the spec where it may impact gravity in an attempt to lower fuel dilution

N-000010-4 (Old Fuel)						
Stage	24HR Stage 1	24HR Stage 2	24HR Stage 3	48HR Stage 1	48HR Stage 2	48HR Stage 3
Sample #	265-29193,,022	265-29193,,023	265-29193,,024	265-29193,,025	265-29193,,026	265-29193,,027
Fuel Dilution %	24.9	18.3	18.8	29.2	19.7	20.3
N-000010-14 (New Fuel)						
Stage	24HR Stage 1	24HR Stage 2	24HR Stage 3	48HR Stage 1	48HR Stage 2	48HR Stage 3
Sample #	265-29193,,035	265-29193,,036	265-29193,,037	265-29193,,038	265-29193,,039	265-29193,,040
Fuel Dilution %	29.4	21.4	22.5	31.3	23.8	22.8
N-000010-19-1						
Stage	24HR Stage 1	24HR Stage 2	24HR Stage 3	48HR Stage 1	48HR Stage 2	48HR Stage 3
Sample #	265-29193,,041	265-29193,,042	265-29193,,043	265-29193,,044	265-29193,,045	265-29193,,046
Fuel Dilution %	29.2	23.4	21.4	31.2	24	22.3

- o Stage 1 raises fuel dilution, Stage 2 lowers and Stage 3 maintains
- o Lubrizol checked these values with Vince Donndelinger to meet current accepted GC integration methodology

- New batch of fuel out for quality check against CofA, deliveries to begin:
 - o SwRI & IAR both estimated 940 start dates week of ~~December 16th~~ January 6th
 - o Completion and review of 940 results week of ~~January 2nd~~ January 20th
 - o Lubrizol & Afton should be ready to start once 940 is confirmed acceptable
- Next SP meeting was tentatively agreed to January 23rd via MS Teams

4. VJ

- A separate effort is being led by Rob Zdrodowski with IAR & SwRI
- Lubrizol's stand is now running
- Throttle issues are common with both high and low speed issues noted. Lab will check calibration values and minimum APP voltages

5. Other

- a. FCS Order through TEI
 - i. "The Pistons and Rings were ordered on November 1st. The lead time for the rings is 69 days and 127 days for the pistons."
 - ii. Rings expected January 9th, 2025
 1. Arrived early but missing some from one size.
 - iii. Pistons expected March 8th, 2025
- b. Camshafts
 - i. Runs per camshaft
 1. Proposals
 - a. Match typical cylinder head life and allow for 10 uses
 - b. With no pressing hardware issues, consider dropping it and retaining 4 runs
 - c. Allow five runs per camshaft and let labs begin to generate reference data
 - d. Labs to clarify cam specifications that need to be monitored
 - i. Lobe lift and journal diameter
 - ii. Add camshaft run # to the next major report form update
 2. Lubrizol to share service specs
 - ii. 12/3/2024 - Decided to table for now given no immediate hardware need. Labs should retain run 4 camshafts for future endeavors.

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	