

Mack / Volvo Surveillance Panel Meeting

October 25, 2023

David Brass (chair)

Agenda

- Volvo T-13 Reference Oil Decision
- Mack T-11 Parts Approval
- Volvo T-13 Parts and Mack T-11/T-12 Coolant Changes
- AOB

Volvo T-13 Reference Oil Suggestions

Volvo T-13 Reference Oil Offerings

Supplier	Test	Oil	%P	%S	%SASH	Viscosity Grade	HTHS	Base Stock Group	FTIR	%KV40 Increase
PC-12 Limits									80	50
A	T-13	1A*	0.081	0.202	0.85	5W-30	3.0	III	80	22.8
		1B*	0.077	0.206	0.85	5W-30	2.9	III	96.4	39.8
A	T-13	2A**	0.078	0.333	0.86	10W-30	3.5	II	87.6	28.9
		2B**	0.079	0.345	0.83	10W-30	3.5	II	84.4	32.2
		2C**	0.080	0.336	0.85	10W-30	3.5	II	77.2	24.2
B	T-13	A***	0.078	0.29	0.95	5W-30	3.6	III	81.0	24.6
B	T-13	C***	0.078	0.29	0.95	10W-40	4.3	II + III	79.5	26.9

* (1A, 1B) are within minor modifications of one another. We would propose to offer Oil 1A as this performed in the test at the limit for FTIR.

** (2A, 2B, 2C) are all within minor modifications of one another. These oils provide the range of values that we have obtained for this oil technology. Depending on the target value desire of the Surveillance Panel any of these three oils or a modification between them can be offered as the final reference oil. Also, the oils tested were 10W-30 ≥ 3.5 cP HTHS. These oils can be provided at 10W-30 FA-4 viscosities in the same base stock slate as these oils were tested.

*** Same additive is each tested oil. Can offer either oil as the reference oil candidate

Surveillance Panel approved Supplier A – Technology 2 for reference oil testing as FA-4 – (8-0-1)

Mack T-11 Parts Approval

Mack T-11/T-12 Parts Approval

On December 19, 2022 the Mack/Volvo Surveillance Panel approved the following motion:

- If Mack T-11 parts (WWWEYPWB) run out before Mack T-12 coordinated reference, recommend using new batch (YYFZQWB) where FsubE piston crowns are used until we can confirm Oil Consumption performance of rest of Piston Crown subgroups. This new batch of parts should be referenced by each lab introducing it, followed by a meeting of the SP to confirm performance of the parts. TMC shall adjust the reference periods in order to have no net gain or loss of reference period time.

On May 23, 2023 the Mack/Volvo Surveillance Panel approved the following motion:

- Until Mack T-12 coordinated references have been completed and parts accepted, new batch YYFZQWB where batch F piston crowns (randomized subgroup excluding subgroup A) are used in the T-11 kits. This new batch of parts should be referenced by each lab introducing it, followed by a meeting of the SP to confirm performance of the parts. TMC shall adjust the reference periods to have no net gain or loss of reference period time.

On September 8, 2023 the Mack/Volvo Surveillance Panel approved the following motion:

- Maintain the current T-12 industry correction factors for the following new hardware combination: Liner=W, Top Ring=Y, Connecting Rod Bearing=Z, Main Bearing=Q, Piston Crown=F from randomized subgroup excluding subgroup A, with an effective date of today (9/8/2023)

Mack T-11 Parts Approval

Motion:

- With the approval of the new parts batch [YYFZQWB where batch F piston crowns (randomized subgroup excluding subgroup A)] in the Mack T-12 on Sept 8, 2023, Mack T-11 tests can be conducted on this parts batch without requiring additional referencing. Standard reference periods should be maintained.
- **Motion Approved 9-0-0**

Volvo T-13 Parts and
Mack T-11/T-12 Coolant Changes

Volvo T-13 Rod Bearings

1. Lab A recently received T-13 upper rod bearings that did not look correct (red coating). These bearings were from part #23994963. The part #21610676-bearing kit (Mahle) has been used the last several years and are still able to be ordered from Volvo. It is not clear if these Mahle bearings are going to continue to be available long term.
2. TEI confirmed that there are ~3000 sets of 21610676 bearings available around the country and are keeping 120 in stock.

SwRI spare from a 21610676 set
Upper Bearing #: 21610683

PNB-3701 from Kit 890
Upper Bearing #: 24049953
Theoretically from set 24049962 per Impact

PNB-3948 from Kit 932
Upper Bearing #: 23885964
From set 23994963?



If you received rod bearings that look like this, please exchange with TEI

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

- 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.

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.