

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

VOLVO VNL 127 (S/N 4V4NC9EH0NN304332)

Diesel Engine

PETRO CANADA DURON SHP 10W30 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

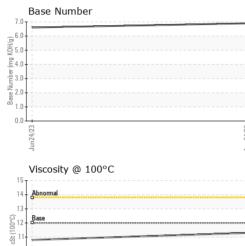
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number Client Info PCA0097444 PCA0097518 Sample Date Client Info 24 Aug 2023 24 Jun 2023 Machine Age mis Client Info 497000 441000 Oil Age mis Client Info 24000 0 Oil Changed Client Info Changed Changed Sample Status NORMAL NORMAL NORMAL Fuel WC Method >6.0 <1.0 <1.0 VEAR METALS method Imit/base current history1 history1 Fuel WC Method >6.0 <1.0 VEAR METALS method Imit/base current history1 history1 fron ppm ASTM D5185m<>2.0 <1 <1 Aluminum ppm ASTM D5185m >2 2 Aluminum ppm ASTM D5185m >30 </th <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
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Machine Age mis Client Info 497000 441000	Sample Number		Client Info		PCA0097444	PCA0097518	
Oil Age mis Client Info 24000 0 Sample Status Imit Info Changed Changed Sample Status Imit Info NORMAL NORMAL CONTAMINATION method Imit/base current history1 history1 Fuel WC Method >6.0 <1.0	Sample Date		Client Info		24 Aug 2023	24 Jun 2023	
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Oil Changed Sample Status Client Info Changed NORMAL Changed NORMAL	Oil Age	mls	Client Info		24000	0	
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Fuel WC Method >6.0 <1.0	CONTAMINATI	ON	method	limit/base	current	history1	history2
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Iron ppm ASTM D5185m >100 14 23							
Chromium ppm ASTM D5185m >20 <1	WEAR METALS	5	method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >2 <1	Iron	ppm	ASTM D5185m	>100	14		
Titanium ppm ASTM D5185m <1 0 Silver ppm ASTM D5185m >2 0 0 Aluminum ppm ASTM D5185m >25 2 2 Lead ppm ASTM D5185m >330 2 4 Copper ppm ASTM D5185m >330 2 4 Vanadium ppm ASTM D5185m >330 2 4 Vanadium ppm ASTM D5185m >15 <1	Chromium	ppm	ASTM D5185m	>20			
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Lead ppm ASTM D5185m >40 <1							
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ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 2 0 0 Barium ppm ASTM D5185m 0 0 0 Barium ppm ASTM D5185m 50 633 655 Manganese ppm ASTM D5185m 0 <1	Vanadium	ppm	ASTM D5185m		0	0	
Boron ppm ASTM D5185m 2 0 0 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 50 63 65 Manganese ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 950 954 978 Calcium ppm ASTM D5185m 1050 1016 1105 Calcium ppm ASTM D5185m 1050 1016 1027 Zinc ppm ASTM D5185m 995 1019 1027 Sulfur ppm ASTM D5185m 2600 3195 3353 Solicon ppm ASTM D5185m >25 5 5 Sodium ppm ASTM	Cadmium	ppm	ASTM D5185m		0	0	
Barium ppm ASTM D5185m 0 0 0	ADDITIVES		method	limit/base	current	history1	history2
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Marganese ppm ASTM D5185m 0 <1	Barium	ppm	ASTM D5185m	0	0	0	
Magnesium ppm ASTM D5185m 950 954 978 Calcium ppm ASTM D5185m 1050 1016 1105 Phosphorus ppm ASTM D5185m 1050 1016 1105 Zinc ppm ASTM D5185m 995 1019 1027 Zinc ppm ASTM D5185m 2600 3195 3353 Sulfur ppm ASTM D5185m 2600 3195 3353 Solicon ppm ASTM D5185m 2600 3195 5 5 Solicon ppm ASTM D5185m 2600 3195 3353 Solicon ppm ASTM D5185m >25 5 5 Sodium ppm ASTM D5185m >20 2 2 INFRA-RED method limit/base current history1 history2 Soot % %	Molybdenum	ppm	ASTM D5185m	50	63	65	
Calcium ppm ASTM D5185m 1050 1016 1105 Phosphorus ppm ASTM D5185m 995 1019 1027 Zinc ppm ASTM D5185m 1180 1238 1296 Sulfur ppm ASTM D5185m 2600 3195 3353 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 Sodium ppm ASTM D5185m >20 2 2 Potassium ppm ASTM D5185m >20 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 9.2 10.0 Sulfation Abs/.1mm *ASTM D7414 >30 20.1 22.5 FLUID DEGRADATION method <t< th=""><th>Manganese</th><th>ppm</th><th>ASTM D5185m</th><th>0</th><th><1</th><th><1</th><th></th></t<>	Manganese	ppm	ASTM D5185m	0	<1	<1	
Phosphorus ppm ASTM D5185m 995 1019 1027 Zinc ppm ASTM D5185m 1180 1238 1296 Sulfur ppm ASTM D5185m 2600 3195 3353 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 5 Sodium ppm ASTM D5185m >25 5 5 Notassium ppm ASTM D5185m >20 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 9.2 10.0 Sulfation Abs/cm *ASTM D7624 >20 9.2 10.0 Sulfation Abs/.1mm *ASTM D7624 >20 9.2 10.0 FLUID DEGRADATION method l	Magnesium	ppm	ASTM D5185m	950	954	978	
Zinc ppm ASTM D5185m 1180 1238 1296 Sulfur ppm ASTM D5185m 2600 3195 3353 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 5 5 Sodium ppm ASTM D5185m >20 2 2 Potassium ppm ASTM D5185m >20 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 9.2 10.0 Sulfation Abs/cm *ASTM D7624 >20 9.2 10.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.2 19.1	Calcium	ppm	ASTM D5185m	1050	1016	1105	
Sulfur ppm ASTM D5185m 2600 3195 3353 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >25 5 5 Sodium ppm ASTM D5185m >25 5 5 Sodium ppm ASTM D5185m >20 2 2 Ntrassium ppm ASTM D5185m >20 2 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >3 0.3 0.5 Nitration Abs/cm *ASTM D7624 >20 9.2 10.0 Sulfation Abs/.1mm *ASTM D7415 >30 20.1 22.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM	Phosphorus	ppm	ASTM D5185m	995	1019	1027	
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Silicon ppm ASTM D5185m >25 5 5 Sodium ppm ASTM D5185m <20	Sulfur	ppm	ASTM D5185m	2600	3195	3353	
Sodium ppm ASTM D5185m <1	CONTAMINAN	TS	method	limit/base	current	history1	history2
Sodium ppm ASTM D5185m <1							
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Soot % % *ASTM D7844 >3 0.3 0.5 Nitration Abs/cm *ASTM D7624 >20 9.2 10.0 Sulfation Abs/.1mm *ASTM D7415 >30 20.1 22.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.2 19.1				>25			
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Nitration Abs/cm *ASTM D7624 >20 9.2 10.0 Sulfation Abs/.1mm *ASTM D7415 >30 20.1 22.5 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 17.2 19.1	Sodium Potassium	ppm	ASTM D5185m ASTM D5185m	>20	<1 2	1 2	 history2
Sulfation Abs/.1mm *ASTM D7415 >30 20.1 22.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.2 19.1	Sodium Potassium INFRA-RED	ppm ppm	ASTM D5185m ASTM D5185m method	>20 limit/base	<1 2 current	1 2 history1	history2
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.2 19.1	Sodium Potassium INFRA-RED Soot %	ppm ppm %	ASTM D5185m ASTM D5185m method *ASTM D7844	>20 limit/base >3	<1 2 current 0.3	1 2 history1 0.5	history2
Oxidation Abs/.1mm *ASTM D7414 >25 17.2 19.1	Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm % Abs/cm	ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7624	>20 limit/base >3 >20	<1 2 current 0.3 9.2	1 2 history1 0.5 10.0	history2
	Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm % Abs/cm Abs/.1mm	ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7844 *ASTM D7624	>20 limit/base >3 >20 >30	<1 2 current 0.3 9.2 20.1	1 2 history1 0.5 10.0 22.5	history2
Base Number (BN) mg KUH/g ASTM D2896 6.9 6.6	Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm ppm % Abs/cm Abs/.1mm OATION	ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D7415	>20 limit/base >3 >20 >30 limit/base	<1 2 current 0.3 9.2 20.1 current	1 2 history1 0.5 10.0 22.5 history1	history2
	Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD Oxidation	ppm ppm % Abs/cm Abs/.1mm OATION Abs/.1mm	ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7624 *ASTM D7415 method *ASTM D7414	>20 limit/base >3 >20 >30 limit/base	<1 2 current 0.3 9.2 20.1 current 17.2	1 2 history1 0.5 10.0 22.5 history1 19.1	history2



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OIL ANALYSIS REPORT



· · · · · · · · · · · · · · · · · · ·	VISUAL		method	limit/base	current	history1	history2
	White Metal	scalar	*Visual	NONE	NONE	NONE	
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
	Precipitate	scalar	*Visual	NONE	NONE	NONE	
	Silt	scalar	*Visual	NONE	NONE	NONE	
	Debris	scalar	*Visual	NONE	NONE	NONE	
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Aug24/23	Appearance	scalar	*Visual	NORML	NORML	NORML	
Aug	Odor	scalar	*Visual	NORML	NORML	NORML	
°C	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
	Free Water	scalar	*Visual		NEG	NEG	
	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	12.00	11.3	10.8	
	GRAPHS						
	Ferrous Alloys						
10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Non-ferrous Metal			Aug24/23			
	Viscosity @ 100°C				Base Number		
	15			7.0			
	14 - Abnormal			6.0			
_	13 Base			BHOX 5.0			
199 199 199 199 199 199 199	12-0.000			(P) HOX BU 4.0 a way 3.0 eg 2.0			
cst ([11			ag 3.0			
	10 - Abnormal			2.0			
	9			1.0			
	8			0.0	Li		
	Jun 24/23			Aug24/23	Jun24/23		Aug24/23
	Lun L			Aug	Jun		Aug
Laboratory Sample No. Lab Number Unique Number Test Package To discuss this sample report, co	: 05971963 I : 10683913 I : FLEET ontact Customer Servi	Received Diagnose Diagnost	d : 06 0 ed : 09 0 ician : Wes	Oct 2023 Oct 2023 s Davis 9.		13915 F Contact: JOSH joshua@t	A REPAIR LLC 5 W ROUTE 30 PLAINFIELD, IL US 60544 IUA HUBBARD varepairIlc.com
* - Denotes test methods that an Statements of conformity to specif					ICGM 106:2012,		(815)306-0330 F: