

OIL ANALYSIS REPORT

VOLVO PENTA

ALASKA LUXURY TOURS CLIF/APEX PORT VOLVO PENTA 2006040393 - STARBOARD DIESEL ENGINE

Sample No: VPA036543
Oil Type: KIRKLAND 15W40

SAMPLE INFORMATION

Sample Number	VPA036543	VPA056360	VPA055123	VPA035212
Sample Date	07 Aug 2023	03 Jul 2023	05 Jun 2023	05 Oct 2022
Machine Hours	2440	2209	2008	1821
Oil Hours	230	201	187	177
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL

Sundance Mfg Inc
570 N.E. Tomahawk Isl. Dr.
Portland, OR
US 97217
Contact: CLARK HOLMES
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F:

OIL CONDITION

Visc @ 100°C	cSt	15.1	15.2	15.4	15.4
Base Number (BN)	mg KOH/g	9.0	9.7	9.4	10.5
Oxidation (PA)	%	77	84	88	81

CONTAMINATION

Soot %	%	0.4	0.4	0.3	0.4
Nitration (PA)	%	84	92	93	91
Sulfation (PA)	%	60	63	62	64
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	3	2	3	4
Sodium	ppm	2	<1	1	<1
Potassium	ppm	0	2	2	1

Diagnosis

Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

WEAR METALS

Iron	ppm	8	10	11	9
Copper	ppm	10	9	10	7
Lead	ppm	4	4	4	5
Tin	ppm	<1	<1	<1	1
Aluminum	ppm	0	2	<1	2
Chromium	ppm	<1	<1	<1	1
Molybdenum	ppm	64	60	62	60
Nickel	ppm	1	2	1	1
Titanium	ppm	<1	<1	0	0
Silver	ppm	0	0	0	0
Manganese	ppm	<1	<1	<1	<1
Vanadium	ppm	<1	<1	0	0

ADDITIVES

Calcium	ppm	1193	1115	1150	1191
Magnesium	ppm	1063	986	1023	1038
Zinc	ppm	1383	1295	1296	1315
Phosphorus	ppm	1121	1016	1025	1098
Barium	ppm	0	0	0	0
Boron	ppm	<1	<1	2	6

Depot: VP154394
Unique No: 10609111
Signed: Sean Felton
Report Date: 22 Aug 2023

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GRAPHS

