

OIL ANALYSIS REPORT

VOLVO PENTA

NADINE URUIOLI CLINT THOMPSON VOLVO PENTA D6-330A A645 183 - STARBOARD DIESEL ENGINE

Sample No: VPA058281
Oil Type: VOLVO PENTA SAE 15W40

SAMPLE INFORMATION

Sample Number	VPA058281	VPA041784	VPA257595	VPA034662
Sample Date	22 Nov 2023	20 Feb 2023	05 Oct 2020	28 Jun 2020
Machine Hours	2642	2638	2347	1946
Oil Hours	2642	0	403	474
Oil Changed	Changed	Not Changd	Not Changd	Not Changd
Sample Status	NORMAL	NORMAL	NORMAL	NORMAL

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 SAN RAFAEL, CA
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 SERVICE@HELMUTSMARINE.COM
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OIL CONDITION

Visc @ 100°C	cSt	13.1	13.4	13.4	13.9
Base Number (BN)	mg KOH/g	9.9	10.7	---	---
Oxidation (PA)	%	57	55	59	53

CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0	0.1	0.1	0.1
Nitration (PA)	%	41	39	51	61
Sulfation (PA)	%	52	53	55	52
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	17	15	5	4
Sodium	ppm	2	2	3	2
Potassium	ppm	2	6	11	6

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 acceptable for the time in service.

WEAR METALS

Iron	ppm	8	5	4	4
Copper	ppm	8	6	2	2
Lead	ppm	<1	1	1	2
Tin	ppm	<1	<1	0	0
Aluminum	ppm	3	2	1	<1
Chromium	ppm	0	<1	<1	<1
Molybdenum	ppm	60	63	50	13
Nickel	ppm	0	<1	1	<1
Titanium	ppm	0	<1	<1	<1
Silver	ppm	0	0	0	0
Manganese	ppm	0	2	<1	<1
Vanadium	ppm	0	0	0	0

ADDITIVES

Calcium	ppm	1184	1160	1176	1385
Magnesium	ppm	919	944	980	841
Zinc	ppm	1399	1300	1144	862
Phosphorus	ppm	1095	1016	1100	814
Barium	ppm	<1	0	0	0
Boron	ppm	8	6	33	84

Depot: VP152741
Unique No: 10767939
Signed: Don Baldrige
Report Date: 05 Dec 2023

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GRAPHS

