

# OIL ANALYSIS REPORT

# VOLVO PENTA

## VOLVO PENTA 70112034648 - STARBOARD DIESEL ENGINE

Sample No: VPA051867

Oil Type: CHEVRON DELO 400 MULTIGRADE 15W40

### SAMPLE INFORMATION

Sample Number	VPA051867	---	---	---
Sample Date	28 Aug 2023	---	---	---
Machine Hours	190	---	---	---
Oil Hours	190	---	---	---
Oil Changed	Changed	---	---	---
Sample Status	ABNORMAL	---	---	---

### North Harbor Diesel Inc

720 30Th Street  
ANACORTES, WA  
US 98221  
Contact: ROBBIN MURDOCK  
robbin@northharbordiesel.com  
T: (360)299-1904  
F:

### OIL CONDITION

Visc @ 100°C	cSt	▲ 11.7	---	---	---
Base Number (BN)	mg KOH/g	■ 9.3	---	---	---
Oxidation (PA)	%	■ 56	---	---	---

### CONTAMINATION

Soot %	%	■ 0.2	---	---	---
Nitration (PA)	%	■ 53	---	---	---
Sulfation (PA)	%	■ 52	---	---	---
Glycol	%	■ NEG	---	---	---
Fuel	%	▲ 5.2	---	---	---
Silicon	ppm	▲ 33	---	---	---
Sodium	ppm	■ 1	---	---	---
Potassium	ppm	■ 2	---	---	---

### WEAR METALS

Iron	ppm	■ 8	---	---	---
Copper	ppm	■ 66	---	---	---
Lead	ppm	■ 1	---	---	---
Tin	ppm	■ 1	---	---	---
Aluminum	ppm	■ 1	---	---	---
Chromium	ppm	■ 2	---	---	---
Molybdenum	ppm	■ 66	---	---	---
Nickel	ppm	■ <1	---	---	---
Titanium	ppm	■ 0	---	---	---
Silver	ppm	■ <1	---	---	---
Manganese	ppm	■ 1	---	---	---
Vanadium	ppm	■ 0	---	---	---

### ADDITIVES

Calcium	ppm	■ 1361	---	---	---
Magnesium	ppm	■ 815	---	---	---
Zinc	ppm	■ 1278	---	---	---
Phosphorus	ppm	■ 1042	---	---	---
Barium	ppm	■ 0	---	---	---
Boron	ppm	■ 14	---	---	---

### Diagnosis

We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. All component wear rates are normal. Elemental level of silicon (Si) above normal indicating ingress of seal material. There is a moderate amount of fuel present in the oil. Fuel is present in the oil and is lowering the viscosity. 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.

Depot: VP179089  
Unique No: 10633947  
Signed: Don Baldrige  
Report Date: 08 Sep 2023

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## GRAPHS

