



CONSTRUCTION EQUIPMENT

4147HD VOLVO EC380EL 315218 - DIESEL ENGINE



Sample No: VCP435021
Oil Type: VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3
Job No: 4147HD



SAMPLE INFORMATION

Sample Number	VCP435021	VCP421187	---	---
Sample Date	15 Aug 2023	07 Jun 2023	---	---
Machine Hours	1190	728	---	---
Oil Hours	500	0	---	---
Oil Changed	Changed	Changed	---	---
Sample Status	ABNORMAL	ABNORMAL	---	---

PENNSY SUPPLY
 200 BURKHOLDER DRIVE
 EPHRATA, PA
 US 17522
 Contact: TYLER MADENFORD



OIL CONDITION

Visc @ 100°C	cSt	▲ 12.3	▲ 10.8	---	---
Base Number (BN)	mg KOH/g	■ 9.8	■ 5.4	---	---
Oxidation (PA)	%	80	70	---	---

T: (717)859-2132
 F:

Diagnosis

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. The copper level has decreased, but is still abnormal. All other component wear rates are normal. There is no indication of any contamination in the oil. The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.



CONTAMINATION

Soot %	%	■ 0	■ 0.1	---	---
Nitration (PA)	%	58	73	---	---
Sulfation (PA)	%	62	60	---	---
Glycol	%	NEG	NEG	---	---
Fuel	%	<1.0	■ 0.9	---	---
Silicon	ppm	■ 7	■ 22	---	---
Sodium	ppm	■ 3	■ 3	---	---
Potassium	ppm	■ <1	■ 4	---	---



WEAR METALS

Iron	ppm	■ 4	■ 10	---	---
Copper	ppm	▲ 41	▲ 237	---	---
Lead	ppm	■ 1	■ 2	---	---
Tin	ppm	■ 1	■ 3	---	---
Aluminum	ppm	■ 1	■ 3	---	---
Chromium	ppm	■ <1	■ <1	---	---
Molybdenum	ppm	■ 46	■ 84	---	---
Nickel	ppm	■ 0	■ <1	---	---
Titanium	ppm	<1	0	---	---
Silver	ppm	■ <1	■ 0	---	---
Manganese	ppm	■ <1	■ 2	---	---
Vanadium	ppm	<1	<1	---	---



ADDITIVES

Calcium	ppm	■ 1786	■ 2089	---	---
Magnesium	ppm	■ 484	■ 213	---	---
Zinc	ppm	■ 1095	■ 1293	---	---
Phosphorus	ppm	■ 921	■ 1031	---	---
Barium	ppm	■ 0	■ 0	---	---
Boron	ppm	■ 43	■ 32	---	---

Depot: PENEPH
Unique No: 10608023
Signed: Don Baldrige
Report Date: 21 Aug 2023



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GRAPHS

