CONSTRUCTION EQUIPMENT

SW-22232-2 MAVERICK VOLVO EC480E 315097 - DIESEL ENGINE

Sample No: VCP423008
Oil Type: VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3
Job No: SW-22232-2 MAVERICK

ARNOLD MACHINERY COMPANY
2975 WEST 2100 SOUTH
SALT LAKE CITY, UT
US 84119
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SAMPLE INFORMATION

Sample Number		**VCP423008**	---	---	---
Sample Date		**31 Jul 2023**	---	---	---
Machine Hours		**679**	---	---	---
Oil Hours		**679**	---	---	---
Oil Changed		**Changed**	---	---	---
Sample Status		**ABNORMAL**	---	---	---

OIL CONDITION

Visc @ 100°C	cSt	▲ **10.5**	---	---	---
Base Number (BN)	mg KOH/g	**4.8**	---	---	---
Oxidation (PA)	%	**72**	---	---	---

CONTAMINATION

Soot %	%	**0.1**	---	---	---
Nitration (PA)	%	**81**	---	---	---
Sulfation (PA)	%	**60**	---	---	---
Glycol	%	**NEG**	---	---	---
Fuel	%	**0.6**	---	---	---
Silicon	ppm	**33**	---	---	---
Sodium	ppm	**0**	---	---	---
Potassium	ppm	**4**	---	---	---

WEAR METALS

Iron	ppm	**14**	---	---	---
Copper	ppm	▲ **263**	---	---	---
Lead	ppm	**1**	---	---	---
Tin	ppm	**2**	---	---	---
Aluminum	ppm	**3**	---	---	---
Chromium	ppm	**0**	---	---	---
Molybdenum	ppm	**84**	---	---	---
Nickel	ppm	**<1**	---	---	---
Titanium	ppm	**<1**	---	---	---
Silver	ppm	**<1**	---	---	---
Manganese	ppm	**3**	---	---	---
Vanadium	ppm	**0**	---	---	---

ADDITIVES

Calcium	ppm	**2221**	---	---	---
Magnesium	ppm	**84**	---	---	---
Zinc	ppm	**1175**	---	---	---
Phosphorus	ppm	**954**	---	---	---
Barium	ppm	**0**	---	---	---
Boron	ppm	**27**	---	---	---

Diagnosis

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). All other component wear rates are normal. Fuel content negligible. No other contaminants were detected in the oil. The oil viscosity is lower than normal. Confirm oil type.

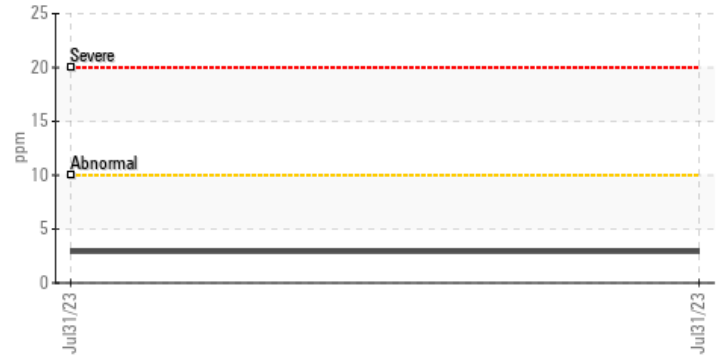
Depot: VOLVO8770
Unique No: 10589081
Signed: Doug Bogart
Report Date: 08 Aug 2023

GRAPHS

Iron (ppm)

Lead (ppm)

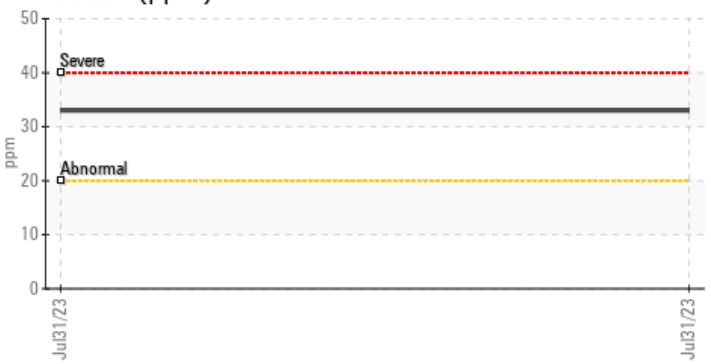
Aluminum (ppm)



Chromium (ppm)

▲ Copper (ppm)

Silicon (ppm)



▲ Viscosity @ 100°C

Base Number