



CONSTRUCTION EQUIPMENT

VOLVO L220H 3589 - DIESEL ENGINE



Sample No: VCP441406
Oil Type: SHELL ROTELLA T3 15W40
Job No:



SAMPLE INFORMATION

Sample Number	VCP441406	VCP441039	VCP440882	VCP440507
Sample Date	29 May 2024	13 May 2024	22 Apr 2024	04 Apr 2024
Machine Hours	2113	1816	1519	1194
Oil Hours	297	297	325	297
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	ABNORMAL	ABNORMAL	ABNORMAL	ABNORMAL

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OIL CONDITION

Visc @ 100°C	cSt	13.1	13.1	13.2	13.0
Base Number (BN)	mg KOH/g	6.3	6.4	6.7	6.5
Oxidation (PA)	%	37	39	39	39



CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	0.1	0.1	0.1	0.1
Nitration (PA)	%	52	52	52	53
Sulfation (PA)	%	46	46	47	47
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	<1.0	<1.0	<1.0	<1.0
Silicon	ppm	7	10	6	5
Sodium	ppm	<1	3	<1	1
Potassium	ppm	2	4	<1	0



WEAR METALS

Iron	ppm	3	5	1	2
Copper	ppm	▲ 35	▲ 109	▲ 182	▲ 84
Lead	ppm	0	3	1	2
Tin	ppm	<1	3	0	0
Aluminum	ppm	1	3	0	<1
Chromium	ppm	<1	2	0	0
Molybdenum	ppm	8	13	8	11
Nickel	ppm	<1	2	0	0
Titanium	ppm	<1	2	0	0
Silver	ppm	0	3	0	0
Manganese	ppm	0	2	0	0
Vanadium	ppm	0	2	0	<1



ADDITIVES

Calcium	ppm	2242	2195	2467	2302
Magnesium	ppm	36	42	39	70
Zinc	ppm	1057	1029	1192	967
Phosphorus	ppm	905	876	1004	915
Barium	ppm	0	1	0	0
Boron	ppm	4	10	3	9

Diagnosis
 Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor. The copper level has decreased, but is still 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. 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.

Depot: COVWES
Unique No: 11059534
Signed: Sean Felton
Report Date: 04 Jun 2024



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GRAPHS

