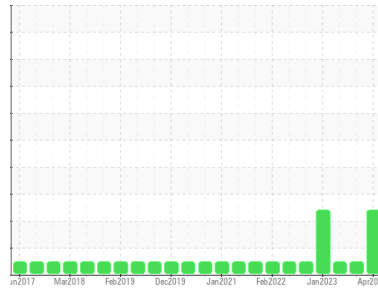


OIL ANALYSIS REPORT



Area
[W02008217]
 Machine Id
VOLVO L90H 623805
 Component
Diesel Engine
 Fluid
MOBIL 15W40 (5 GAL)

Sample Rating Trend



DIAGNOSIS

Recommendation
 We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. (Customer Sample Comment: W02008217)

Wear
 All component wear rates are normal.

Contamination
 Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

Fluid Condition
 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.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	ML0001072	VCP420837	VCP419406
Sample Date	Client Info	18 Apr 2024	27 Oct 2023	06 Jun 2023
Machine Age	hrs	12235	11538	11000
Oil Age	hrs	500	500	500
Oil Changed	Client Info	Changed	Changed	Changed
Sample Status		ABNORMAL	NORMAL	NORMAL

CONTAMINATION

method	limit/base	current	history1	history2
Fuel	WC Method >6.0	<1.0	<1.0	<1.0
Water	WC Method >0.1	NEG	NEG	NEG
Glycol	WC Method	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185m >100	49	9	12
Chromium	ppm ASTM D5185m >10	6	<1	2
Nickel	ppm ASTM D5185m >10	<1	<1	0
Titanium	ppm ASTM D5185m	<1	0	<1
Silver	ppm ASTM D5185m >2	0	<1	0
Aluminum	ppm ASTM D5185m >10	11	2	3
Lead	ppm ASTM D5185m >20	0	0	0
Copper	ppm ASTM D5185m >15	3	<1	1
Tin	ppm ASTM D5185m >10	<1	0	<1
Vanadium	ppm ASTM D5185m	<1	0	0
Cadmium	ppm ASTM D5185m	0	<1	0

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m	256	302	231
Barium	ppm ASTM D5185m	0	4	0
Molybdenum	ppm ASTM D5185m	107	127	113
Manganese	ppm ASTM D5185m	<1	0	<1
Magnesium	ppm ASTM D5185m	576	587	656
Calcium	ppm ASTM D5185m	1478	1445	1635
Phosphorus	ppm ASTM D5185m	675	729	713
Zinc	ppm ASTM D5185m	780	837	889
Sulfur	ppm ASTM D5185m	2644	2507	2973

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >20	▲ 31	7	8
Sodium	ppm ASTM D5185m >118	4	0	1
Potassium	ppm ASTM D5185m >20	<1	1	0

INFRA-RED

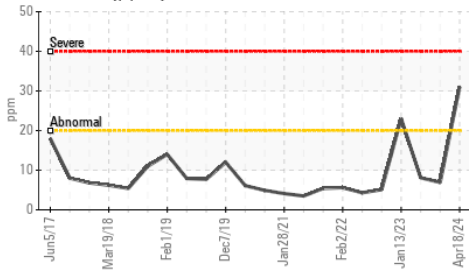
method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >3	0.4	0.3	0.4
Nitration	Abs/cm *ASTM D7624 >20	8.0	7.7	9.1
Sulfation	Abs/.1mm *ASTM D7415 >30	22.0	22.0	22.4

FLUID DEGRADATION

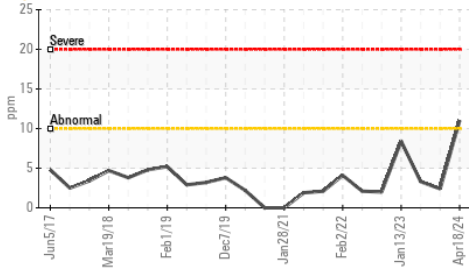
method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	16.9	16.5	17.3
Base Number (BN)	mg KOH/g ASTM D2896	8.3	8.2	8.2

OIL ANALYSIS REPORT

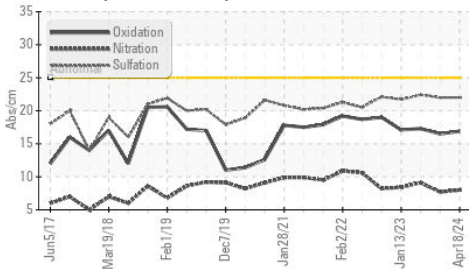
▲ Silicon (ppm)



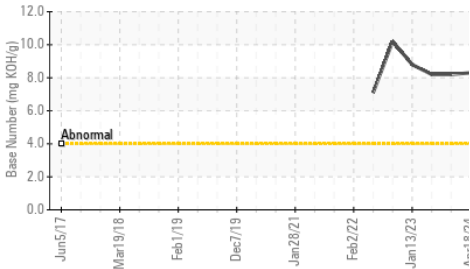
● Aluminum (ppm)



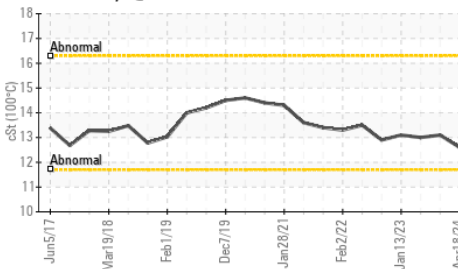
FT-IR (Direct Trend)



Base Number



Viscosity @ 100°C

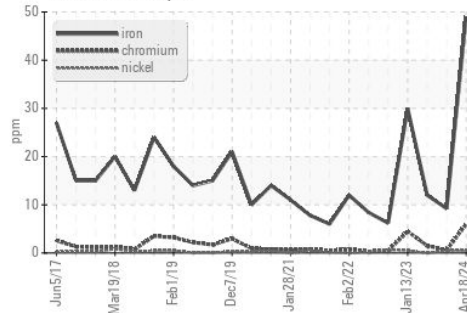


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

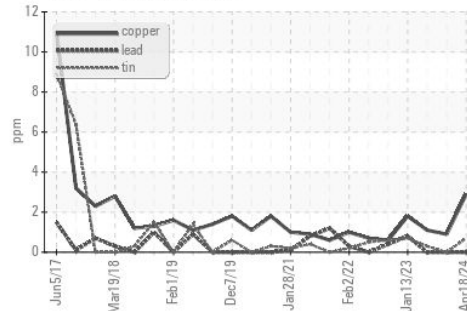
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	12.6	13.1	13.0

GRAPHS

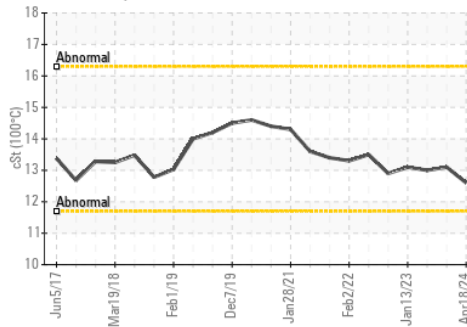
Ferrous Alloys



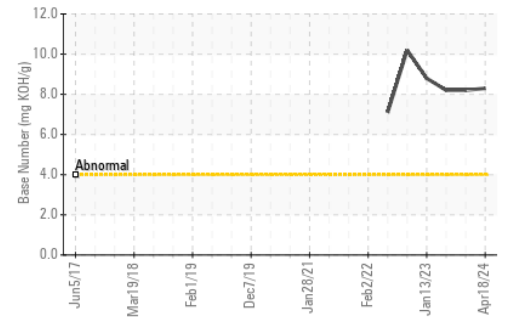
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : ML0001072

Lab Number : 06155553

Unique Number : 10990976

Test Package : CONST (Additional Tests: TBN)

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Received : 22 Apr 2024

Tested : 23 Apr 2024

Diagnosed : 24 Apr 2024 - Sean Felton

McCLUNG-LOGAN EQUIPMENT CO - MANASSAS

8450 QUARRY ROAD

MANASSAS, VA

US 20110

Contact: MIKE MAYHUGH

MMAYHUGH@MCCLUNG-LOGAN.COM

T: (703)393-7344

F: (703)393-7844