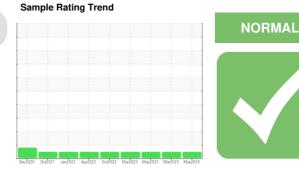


OIL ANALYSIS REPORT







Machine Id VOLVO L180H 5343

Diesel Engine

VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3 (--- GAL)

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

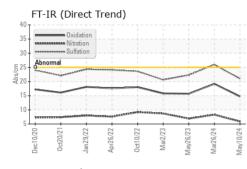
Fluid Condition

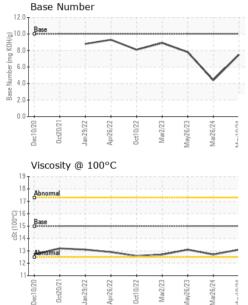
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

	NATION	method	limit/base	current	history1	history2
Sample Number		Client Info		ML0001682	VCP445933	VCP407759
Sample Date		Client Info		10 May 2024	26 Mar 2024	26 May 2023
Machine Age	hrs	Client Info		7255	7009	5450
Oil Age	hrs	Client Info		0	500	500
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	N	method	limit/base	current	history1	history2
Fuel		WC Method	>6.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>200	4	11	4
Chromium	ppm	ASTM D5185m	>20	0	0	0
Nickel	ppm	ASTM D5185m	>5	0	0	0
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>30	2	4	2
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>20	2	2	<1
Tin	ppm	ASTM D5185m	>20	0	<1	0
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	nnm	ASTM D5185m	25			
Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m	2.5	420	153	398
Barium	ppm	ASTM D5185m	0.0	420 0	153 0	398 0
Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	0.0 0.7	420 0 88	153 0 87	398 0 84
Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0.0 0.7 0.0	420 0 88 0	153 0 87 <1	398 0 84 0
Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0.0 0.7 0.0 256	420 0 88 0 388	153 0 87 <1 408	398 0 84 0 400
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0.0 0.7 0.0 256 2057	420 0 88 0 388 1406	153 0 87 <1 408 1417	398 0 84 0 400 1483
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0.0 0.7 0.0 256 2057 935	420 0 88 0 388 1406 1040	153 0 87 <1 408 1417 1064	398 0 84 0 400 1483 997
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0.0 0.7 0.0 256 2057	420 0 88 0 388 1406	153 0 87 <1 408 1417	398 0 84 0 400 1483
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0.0 0.7 0.0 256 2057 935 1223	420 0 88 0 388 1406 1040 1277	153 0 87 <1 408 1417 1064 1264	398 0 84 0 400 1483 997 1244
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0.0 0.7 0.0 256 2057 935 1223 4079	420 0 88 0 388 1406 1040 1277 3906	153 0 87 <1 408 1417 1064 1264 3562	398 0 84 0 400 1483 997 1244 3848
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0.0 0.7 0.0 256 2057 935 1223 4079 limit/base	420 0 88 0 388 1406 1040 1277 3906 current	153 0 87 <1 408 1417 1064 1264 3562 history1	398 0 84 0 400 1483 997 1244 3848 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0.0 0.7 0.0 256 2057 935 1223 4079 <i>limit/base</i> >20	420 0 88 0 388 1406 1040 1277 3906 current 5	153 0 87 <1 408 1417 1064 1264 3562 history1 7	398 0 84 0 400 1483 997 1244 3848 history2 5
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0.0 0.7 0.0 256 2057 935 1223 4079 <i>limit/base</i> >20	420 0 88 0 388 1406 1040 1277 3906 current 5 1	153 0 87 <1 408 1417 1064 1264 3562 history1 7 2	398 0 84 0 400 1483 997 1244 3848 history2 5 1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0.0 0.7 0.0 256 2057 935 1223 4079 limit/base >20	420 0 88 0 388 1406 1040 1277 3906 current 5 1 1	153 0 87 <1 408 1417 1064 1264 3562 history1 7 2 2 <1	398 0 84 0 400 1483 997 1244 3848 history2 5 1 1 <1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0.0 0.7 0.0 256 2057 935 1223 4079 <i>limit/base</i> >20 <i>limit/base</i> >3	420 0 88 0 388 1406 1040 1277 3906 current 5 1 1 1 2 current	153 0 87 <1 408 1417 1064 1264 3562 history1 7 2 <1 x1	398 0 84 0 400 1483 997 1244 3848 history2 5 1 <1 <1 kistory2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0.0 0.7 0.0 256 2057 935 1223 4079 limit/base >20 limit/base >20	420 0 88 0 388 1406 1040 1277 3906 current 5 1 1 1 current 0.1	153 0 87 <1 408 1417 1064 1264 3562 history1 7 2 <1 7 2 <1 0.2	398 0 84 0 400 1483 997 1244 3848 history2 5 1 <1 <1 kistory2 0.1
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0.0 0.7 0.0 256 2057 935 1223 4079 limit/base >20 limit/base >20 limit/base >20	420 0 88 0 388 1406 1040 1277 3906 current 5 1 1 1 current 0.1 5.9	153 0 87 <1 408 1417 1064 1264 3562 history1 7 2 <1 2 <1 history1 0.2 8.3	398 0 84 0 400 1483 997 1244 3848 history2 5 1 1 <1 <1 history2 0.1 6.9
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0.0 0.7 0.0 256 2057 935 1223 4079 <i>limit/base</i> >20 <i>limit/base</i> >3 >20 >30	420 0 88 0 388 1406 1040 1277 3906 <u>current</u> 5 1 1 1 <u>current</u> 0.1 5.9 21.0	153 0 87 <1 408 1417 1064 1264 3562 history1 7 2 <1 7 2 <1 0.2 8.3 26.0	398 0 84 0 400 1483 997 1244 3848 history2 5 1 <1 <1 kistory2 0.1 6.9 22.3

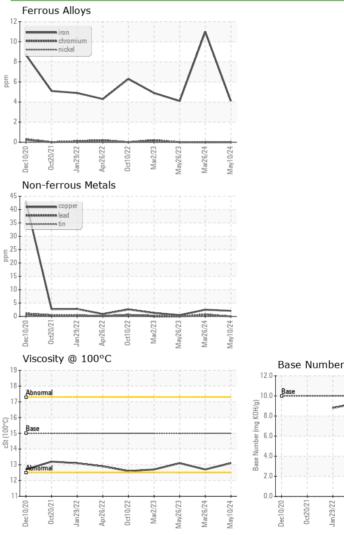


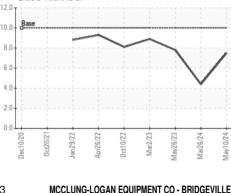
OIL ANALYSIS REPORT





VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.0	13.1	12.7	13.1
GRAPHS						





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 MCCLUNG-LOGAN EQUIPMENT CO - BRIDGEVILLE Sample No. : ML0001682 Received : 16 May 2024 17941 SUSSEX HIGHWAY Lab Number : 06180992 Tested : 24 May 2024 BRIDGEVILLE, DE Unique Number : 11032318 Diagnosed : 24 May 2024 - Jonathan Hester US 19933 Test Package : CONST (Additional Tests: TBN) Contact: MATT CLARK Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. MCLARK@mcclung-logan.com T: (302)337-3400 * - 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) F: (302)337-9083

Report Id: VOLVO1023 [WUSCAR] 06180992 (Generated: 05/24/2024 15:52:40) Rev: 1

Contact/Location: MATT CLARK - VOLVO1023