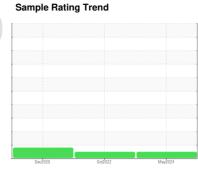


OIL ANALYSIS REPORT



Area [W/O 10848] VOLVO L90H 623915

Rear Axle VOLVO WB 102 (8 GAL)





Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

Fluid Condition

The condition of the oil is acceptable for the time in service.

Sample Number Sample Date Machine Age Oil Age Oil Changed Sample Status CONTAMINATION Method Wear WC Method Wear METALS Iron Nickel ppm ASTM D5185m Aluminum ppm ASTM D5185m Antimony Vanadium ppm ASTM D5185m Cadmium ppm ASTM D5185m Barium Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Manganese ppm ASTM D5185m Magnesium Phosphorus ppm ASTM D5185m Sodium Photassium ppm ASTM D5185m Colient Info Client I				
Sample Date Machine Age Oil Age Oil Age Oil Changed Client Info Sample Status CONTAMINATION Water WC Method WEAR METALS Iron Chromium Ppm ASTM D5185m Nickel Ppm ASTM D5185m Aluminum Lead Ppm ASTM D5185m Copper Ppm ASTM D5185m Antimony Vanadium Ppm ASTM D5185m Cadmium Ppm ASTM D5185m ASTM D5185m Cadmium Ppm ASTM D5185m Cadmium Ppm ASTM D5185m Ppm ASTM D5185m ASTM D5185m Ppm ASTM D5185m ASTM D5185m Ppm ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Ppm ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Ppm ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Potassium Ppm ASTM D5185m Potassium Potassium Ppm ASTM D5185m Potassium Potassium Ppm ASTM D5185m Potassium Po	limit/base	current	history1	history2
Machine Age hrs Client Info Oil Age hrs Client Info Sample Status		ML0002186	VCP390126	VCP290787
Oil Age Oil Changed Client Info Oil Changed Sample Status CONTAMINATION method Water WC Method WEAR METALS method Iron ppm ASTM D5185m Chromium ppm ASTM D5185m Nickel ppm ASTM D5185m Silver ppm ASTM D5185m Aluminum ppm ASTM D5185m Lead ppm ASTM D5185m Copper ppm ASTM D5185m Tin ppm ASTM D5185m Antimony ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m ADDITIVES method Boron ppm ASTM D5185m Manganese ppm ASTM D5185m Manganese ppm ASTM D5185m Calcium ppm ASTM D5185m Contaminant ppm A		28 May 2024	13 Oct 2022	14 Dec 2020
Oil Changed Sample Status CONTAMINATION Water WEAR METALS Iron ppm ASTM D5185m Chromium ppm ASTM D5185m Nickel ppm ASTM D5185m Nickel ppm ASTM D5185m Aluminum ppm ASTM D5185m Copper ppm ASTM D5185m Antimony Vanadium ppm ASTM D5185m Cadmium ppm ASTM D5185m ADDITIVES Barium Manganese ppm ASTM D5185m Manganese ppm ASTM D5185m ASTM D		11224	8591	4845
CONTAMINATION Water WEAR METALS Iron Chromium Nickel Titanium ppm ASTM D5185m Nickel ppm ASTM D5185m Nickel Titanium ppm ASTM D5185m Aluminum ppm ASTM D5185m Aluminum ppm ASTM D5185m Copper ppm ASTM D5185m ASTM		2633	0	0
CONTAMINATION Water WC Method WEAR METALS Iron Chromium Nickel Titanium Silver ASTM D5185m Aluminum Lead Copper Tin ppm ASTM D5185m		Changed	Changed	Changed
Water WC Method WEAR METALS method Iron ppm ASTM D5185m Chromium ppm ASTM D5185m Nickel ppm ASTM D5185m Titanium ppm ASTM D5185m Silver ppm ASTM D5185m Aluminum ppm ASTM D5185m Lead ppm ASTM D5185m Copper ppm ASTM D5185m Tin ppm ASTM D5185m Antimony ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m MADDITIVES method Boron ppm ASTM D5185m Manganese ppm ASTM D5185m Manganese ppm ASTM D5185m Calcium ppm ASTM D5185m Chart ppm ASTM D5185m Calcium ppm ASTM D5185m Contaminant ppm Astm D5		NORMAL	NORMAL	ABNORMAL
WEAR METALS Iron Chromium Ppm ASTM D5185m Nickel Ppm ASTM D5185m Titanium Ppm ASTM D5185m Silver Ppm ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Lead Ppm ASTM D5185m Lead Ppm ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ANTI Ppm ASTM D5185m ASTM D518	limit/base	current	history1	history2
Iron ppm ASTM D5185m Chromium ppm ASTM D5185m Nickel ppm ASTM D5185m Titanium ppm ASTM D5185m Silver ppm ASTM D5185m Aluminum ppm ASTM D5185m Lead ppm ASTM D5185m Copper ppm ASTM D5185m Tin ppm ASTM D5185m Antimony ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m MADDITIVES method Boron ppm ASTM D5185m Manganese ppm ASTM D5185m Manganese ppm ASTM D5185m Calcium ppm ASTM D5185m Contaminant ppm AST	>0.2	NEG	NEG	NEG
Chromium ppm ASTM D5185m Nickel ppm ASTM D5185m ppm ASTM D5185m Silver ppm ASTM D5185m ppm ASTM D5185m Silver ppm ASTM D5185m	limit/base	current	history1	history2
Nickel ppm ASTM D5185m Titanium ppm ASTM D5185m Silver ppm ASTM D5185m Aluminum ppm ASTM D5185m Lead ppm ASTM D5185m Copper ppm ASTM D5185m Tin ppm ASTM D5185m Antimony ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m ADDITIVES method Boron ppm ASTM D5185m Barium ppm ASTM D5185m Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Calcium ppm ASTM D5185m Calcium ppm ASTM D5185m Calcium ppm ASTM D5185m Contain ppm ASTM D5185m Contain ppm ASTM D5185m Contain ppm ASTM D5185m Sulfur ppm ASTM D5185m Contain ppm ASTM D5185m Sulfur ppm ASTM D5185m Contain ppm ASTM D5185m Contain ppm ASTM D5185m Contain ppm ASTM D5185m Sodium ppm ASTM D5185m Contain ppm Astm D518	>300	58	144	▲ 304
Titanium ppm ASTM D5185m Silver ppm ASTM D5185m Appm ASTM D5185m AS	>10	0	2	2
Silver ppm ASTM D5185m Aluminum ppm ASTM D5185m Lead ppm ASTM D5185m Copper ppm ASTM D5185m Tin ppm ASTM D5185m Antimony ppm ASTM D5185m Vanadium ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m ADDITIVES method Boron ppm ASTM D5185m Manganese ppm ASTM D5185m Manganese ppm ASTM D5185m Magnesium ppm ASTM D5185m Calcium ppm ASTM D5185m Chart ppm ASTM D5185m Calcium ppm ASTM D5185m Contaminant ppm ASTM	>4	0	<1	<1
Aluminum ppm ASTM D5185m Lead ppm ASTM D5185m Copper ppm ASTM D5185m Tin ppm ASTM D5185m Antimony ppm ASTM D5185m Antimony ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m ADDITIVES method Boron ppm ASTM D5185m Barium ppm ASTM D5185m Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Magnesium ppm ASTM D5185m Calcium ppm ASTM D5185m Calcium ppm ASTM D5185m Solitur ppm ASTM D5185m Contamination ppm ASTM D5185m Solitur ppm ASTM D5185m Contamination ppm		0	<1	<1
Lead ppm ASTM D5185m Copper ppm ASTM D5185m Tin ppm ASTM D5185m Antimony ppm ASTM D5185m Vanadium ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m ADDITIVES method Boron ppm ASTM D5185m Barium ppm ASTM D5185m Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Magnesium ppm ASTM D5185m Calcium ppm ASTM D5185m Phosphorus ppm ASTM D5185m Sulfur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m VISUAL method White Metal scalar *Visual Yellow Metal scalar *Visual Precipitate scalar *Visual Silt scalar *Visual		0	0	0
Lead ppm ASTM D5185m Copper ppm ASTM D5185m Tin ppm ASTM D5185m Antimony ppm ASTM D5185m Vanadium ppm ASTM D5185m Cadmium ppm ASTM D5185m Cadmium ppm ASTM D5185m ADDITIVES method Boron ppm ASTM D5185m Barium ppm ASTM D5185m Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Calcium ppm ASTM D5185m Calcium ppm ASTM D5185m Phosphorus ppm ASTM D5185m Zinc ppm ASTM D5185m Sulfur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m VISUAL method White Metal scalar *Visual Yellow Metal scalar *Visual Precipitate scalar *Visual Silt scalar *Visual	>15	1	1	2
Copper ppm ASTM D5185m Tin ppm ASTM D5185m Antimony ppm ASTM D5185m Vanadium ppm ASTM D5185m Cadmium ppm ASTM D5185m ADDITIVES method Boron ppm ASTM D5185m Barium ppm ASTM D5185m Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Calcium ppm ASTM D5185m Phosphorus ppm ASTM D5185m Sulfur ppm ASTM D5185m Sulfur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m VISUAL method White Metal scalar *Visual Yellow Metal scalar *Visual Precipitate scalar *Visual	>4	0	<1	1
Antimony ppm ASTM D5185m Portion ppm ASTM D5185m ppm ASTM D518	>200	4	10	28
Antimony ppm ASTM D5185m Vanadium ppm ASTM D5185m Cadmium ppm ASTM D5185m ADDITIVES method Boron ppm ASTM D5185m Barium ppm ASTM D5185m Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Magnesium ppm ASTM D5185m Calcium ppm ASTM D5185m Phosphorus ppm ASTM D5185m Zinc ppm ASTM D5185m Sulfur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m VISUAL method White Metal scalar *Visual Yellow Metal scalar *Visual Precipitate scalar *Visual	>15	<1	1	1
Vanadium ppm ASTM D5185m Cadmium ppm ASTM D5185m ADDITIVES method Boron ppm ASTM D5185m Barium ppm ASTM D5185m Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Magnesium ppm ASTM D5185m Calcium ppm ASTM D5185m Phosphorus ppm ASTM D5185m Zinc ppm ASTM D5185m Sulfur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m VISUAL method White Metal scalar *Visual Yellow Metal scalar *Visual Precipitate scalar *Visual	>4			5
ADDITIVES Method Boron Barium Molybdenum Mastm D5185m Manganese Magnesium Phosphorus Sulfur CONTAMINANTS CONTAMINANTS Sodium Potassium Potas		0	<1	0
Boron ppm ASTM D5185m Barium ppm ASTM D5185m Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Magnesium ppm ASTM D5185m Calcium ppm ASTM D5185m Phosphorus ppm ASTM D5185m Zinc ppm ASTM D5185m Sulfur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m VISUAL method White Metal scalar *Visual Yellow Metal scalar *Visual Precipitate scalar *Visual Silit scalar *Visual		0	0	<1
Barium ppm ASTM D5185m Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Magnesium ppm ASTM D5185m Calcium ppm ASTM D5185m Phosphorus ppm ASTM D5185m Zinc ppm ASTM D5185m Sulfur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m VISUAL method White Metal scalar *Visual Yellow Metal scalar *Visual Precipitate scalar *Visual Silt scalar *Visual	limit/base	current	history1	history2
Barium ppm ASTM D5185m Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Magnesium ppm ASTM D5185m Calcium ppm ASTM D5185m Phosphorus ppm ASTM D5185m Zinc ppm ASTM D5185m Sulfur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m VISUAL method White Metal scalar *Visual Yellow Metal scalar *Visual Precipitate scalar *Visual Silt scalar *Visual		155	123	106
Molybdenum ppm ASTM D5185m Manganese ppm ASTM D5185m Magnesium ppm ASTM D5185m Calcium ppm ASTM D5185m Phosphorus ppm ASTM D5185m Zinc ppm ASTM D5185m Sulfur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m VISUAL method White Metal scalar *Visual Yellow Metal scalar *Visual Precipitate scalar *Visual Silt scalar *Visual		0	2	0
Manganese ppm ASTM D5185m Magnesium ppm ASTM D5185m Calcium ppm ASTM D5185m Phosphorus ppm ASTM D5185m Zinc ppm ASTM D5185m Sulfur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m VISUAL method White Metal scalar *Visual Yellow Metal scalar *Visual Precipitate scalar *Visual Silt scalar *Visual		0	8	3
Magnesium ppm ASTM D5185m Calcium ppm ASTM D5185m Phosphorus ppm ASTM D5185m Zinc ppm ASTM D5185m Sulfur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m VISUAL method White Metal scalar *Visual Yellow Metal scalar *Visual Precipitate scalar *Visual Silt scalar *Visual		<1	2	3
Calcium ppm ASTM D5185m Phosphorus ppm ASTM D5185m Zinc ppm ASTM D5185m Sulfur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m VISUAL method White Metal scalar *Visual Yellow Metal scalar *Visual Precipitate scalar *Visual Silt scalar *Visual		20	76	71
Phosphorus ppm ASTM D5185m Zinc ppm ASTM D5185m Sulfur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m VISUAL method White Metal scalar *Visual Yellow Metal scalar *Visual Precipitate scalar *Visual Silt scalar *Visual		4009	3618	3493
Zinc ppm ASTM D5185m ppm ASTM D5185m ppm ASTM D5185m ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m ppm ASTM D5185m ppm ASTM D5185m Potassium ppm ASTM D5185m ppm ASTM D5185m VISUAL method White Metal scalar *Visual *Visual precipitate scalar *Visual *Visual Silt scalar *Visual *Visua		1342	1262	1158
Sulfur ppm ASTM D5185m CONTAMINANTS method Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m VISUAL method White Metal scalar *Visual Yellow Metal scalar *Visual Precipitate scalar *Visual Silt scalar *Visual		1623	1572	1498
Silicon ppm ASTM D5185m Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m VISUAL method White Metal scalar *Visual Yellow Metal scalar *Visual Precipitate scalar *Visual Silt scalar *Visual		4066	4760	3433
Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m VISUAL method White Metal scalar *Visual Yellow Metal scalar *Visual Precipitate scalar *Visual Silt scalar *Visual	limit/base	current	history1	history2
Sodium ppm ASTM D5185m Potassium ppm ASTM D5185m VISUAL method White Metal scalar *Visual Yellow Metal scalar *Visual Precipitate scalar *Visual Silt scalar *Visual	>75	16	14	18
Potassium ppm ASTM D5185m VISUAL method White Metal scalar *Visual Yellow Metal scalar *Visual Precipitate scalar *Visual Silt scalar *Visual		1	7	3
White Metal scalar *Visual Yellow Metal scalar *Visual Precipitate scalar *Visual Silt scalar *Visual	>20	0	0	0
Yellow Metalscalar*VisualPrecipitatescalar*VisualSiltscalar*Visual	limit/base	current	history1	history2
Precipitate scalar *Visual Silt scalar *Visual	NONE	NONE	MODER	MODER
Silt scalar *Visual	NONE	NONE	NONE	NONE
	NONE	NONE	NONE	NONE
Debris scalar *Visual	NONE	MODER	NONE	NONE
	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

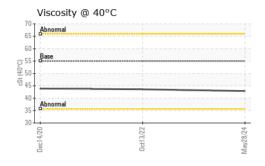
mitted By: DELANO GREGORY

NEG

scalar *Visual

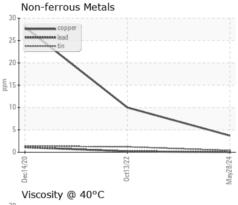


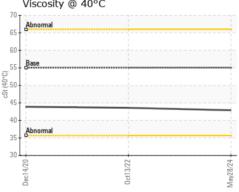
OIL ANALYSIS REPORT



Visc @ 40°C	cSt					history2
	001	ASTM D445	55	42.9	43.6	43.9
SAMPLE IMAGES	5	method	limit/base	current	history1	history2
Color				no image	no image	no image
Bottom				no image	no image	no image

Ferrous Alloys 350 250







Certificate 12367

Laboratory

Sample No. : ML0002186 Lab Number : 06197108 Unique Number : 11059231

Test Package : CONST

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 31 May 2024 Tested

: 03 Jun 2024 Diagnosed : 04 Jun 2024 - Don Baldridge

4601 WASHINGTON BOULEVARD BALTIMORE, MD

US 21227 Contact: MARK CIULLA mciulla@mcclung-logan.com

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)

Report Id: VOLVO0150 [WUSCAR] 06197108 (Generated: 06/06/2024 00:19:40) Rev: 1

Submitted By: DELANO GREGORY

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